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**EXECUTIVE SUMMARY**  
for the  
**UPPER CONNECTICUT RIVER**  
**WATER SUPPLY**  
**MANAGEMENT AREA**

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**MARCH 31, 1989**

UPPER CONNECTICUT RIVER PUBLIC WATER SUPPLY MANAGEMENT AREA

EXECUTIVE SUMMARY

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Report Cover

Photograph of MDC Reservoir  
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taken by Lincoln Godfrey.

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## SECTION ONE

### INTRODUCTION

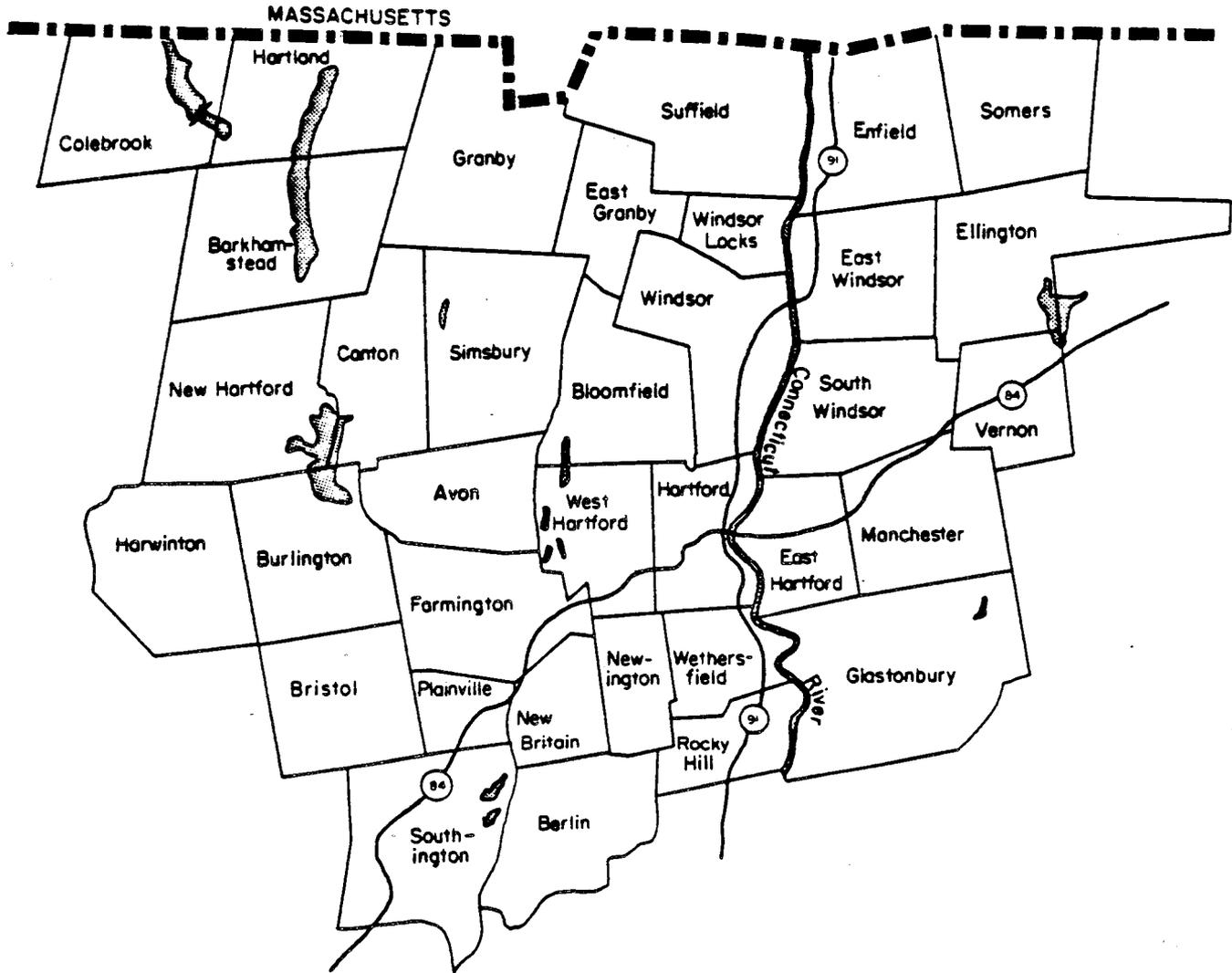
#### 1.1. UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA

The Upper Connecticut River Water Supply Management Area lies in north central Connecticut, bordered to the north by the Commonwealth of Massachusetts. As shown on Figure 1, the Management Area includes 35 different communities, and covers a land area of over 1,000 square miles. The Connecticut Department of Environmental Protection (DEP) has estimated that around 90 percent of the Upper Connecticut area population (estimated at about 885,760 in 1985) is served by public or private utilities, with the remainder deriving their supply from individual groundwater wells. There are a total of 85 utilities in the Upper Connecticut River Study Area; of these, only twenty serve a customer base within the area of greater than 1,000 people.

The center of the Upper Connecticut River area, both geographically and in population density, is Hartford, which also hosts the largest utility (the Metropolitan District Commission). The population center radiates outward from Hartford, with larger utilities typically found in the capitol region and the smaller sized utilities generally located in the outer reaches of the Management Area. Although population grew by about 20 percent on an area-wide basis between 1960 and 1970, there was a drop in total population during the next 10 year period (1970-1980). This drop was primarily associated with significant declines in the major population center in and around Hartford. However, the Connecticut Office of Policy and Management (OPM) projects that there will be a general increase in the overall population of the Upper Connecticut River area over the next several decades, which will be principally stimulated by growth in the eastern and western parts of the study area. The overall growth and changing growth patterns, coupled with known contamination in many individual and utility wells, points to the need for a coordinated approach as water supply and distribution systems expand to serve future needs.



5 0 5 10 Miles



 RESERVOIR

**FIGURE 1**  
**UPPER CONNECTICUT RIVER**  
**WATER SUPPLY**  
**MANAGEMENT AREA**

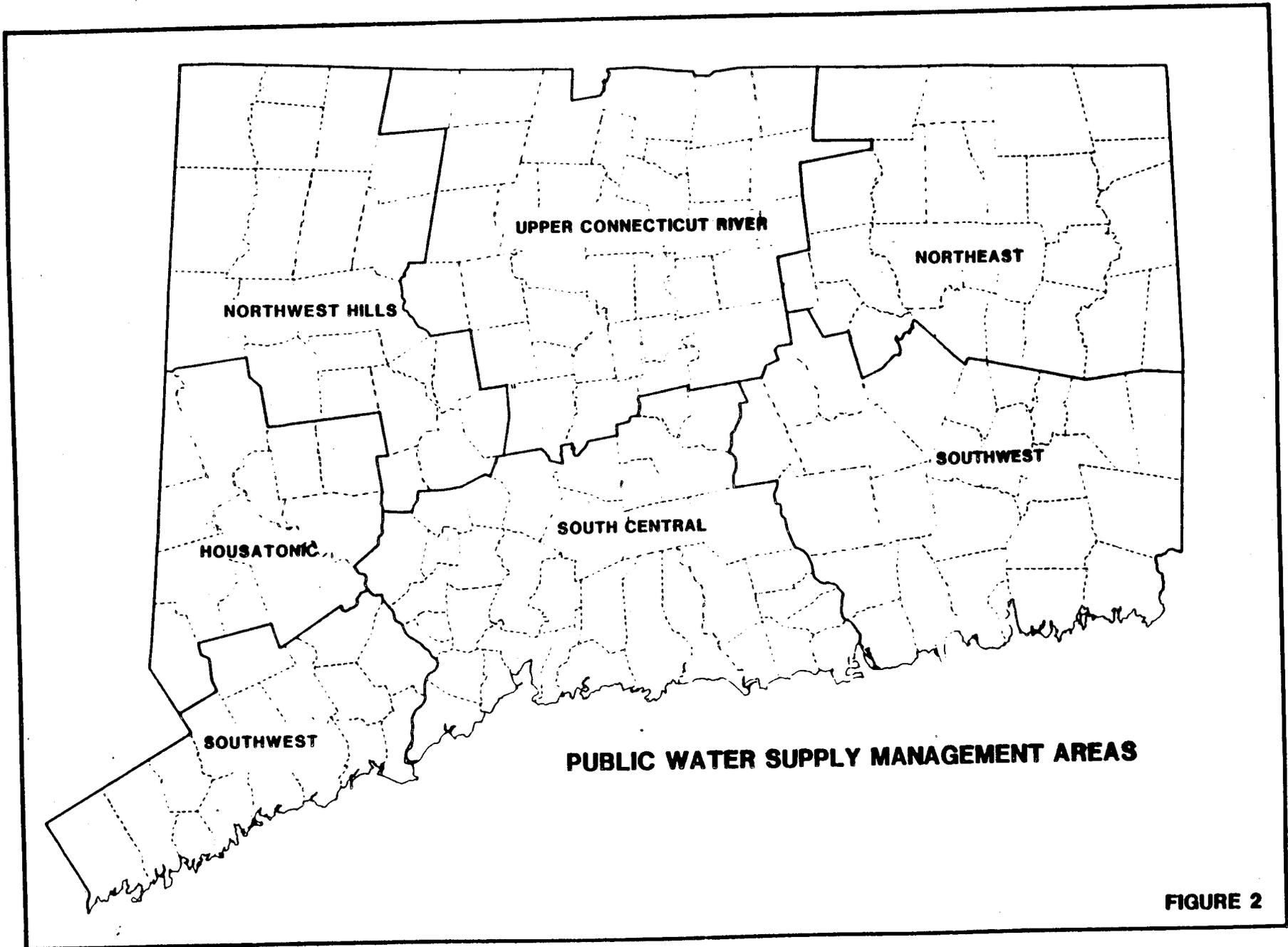
## 1.2 THE COORDINATED WATER SYSTEM PLANNING PROCESS

An Act Concerning a Connecticut Plan for Public Water Supply Coordination (Public Act 85-535) was passed by the Connecticut General Assembly in the 1985 legislative session. The Act provides for a coordinated approach to long range water supply planning, addressing water quality and quantity issues from an areawide perspective.

The regional planning process is designed to bring together utility representatives and agency representatives in a Water Utility Coordinating Committee (WUCC) to discuss long range water supply issues and to develop an areawide water supply plan. The plan should address future water supply needs and concerns, and should identify potential conflicts over future water supply sources, competition for future service areas, or areas of anticipated growth where public water supply is not available.

To facilitate this process, the State has been divided into seven areas for water supply planning, as shown on Figure 2. Some of the criteria that were considered in developing these boundaries included population density and distribution, existing sources of public water supply, service areas or franchise areas, interconnections between public systems, municipal and planning region boundaries, natural drainage basins, topography and geology, and the similarity of water supply problems. The boundaries for these Public Water Supply Management Areas were adopted by the Commissioner of Health Services after considerable public comment, agency input and a series of public hearings.

To devote the necessary resources and funding to each area, it was necessary that priorities first be established, and the planning process begun in each area in priority order. The Housatonic area WUCC was the first to be convened on June 11, 1986, and was prioritized first due to its rapid population growth and numerous small water systems. The Upper Connecticut River Area was set as the second priority in the State due to its higher population concentration, groundwater contamination problems, concerns over the adequacy of existing future water supplies, the general level of existing and utility planning, and inter-utility



coordination. The Commissioner of Health Services convened the Upper Connecticut River Water Utility Coordinating Committee on March 24, 1987.

As shown on Figure 3, the Coordinated Water System Plan prepared for the Upper Connecticut Area incorporates the individual water system plans from each utility with greater than 1000 users within the management area as well as the Areawide Supplement prepared under the auspices of the WUCC. The Areawide Supplement includes four key components: the Water Supply Assessment (Chapter One), Exclusive Service Areas Report (Chapter Two), Integrated Report (Chapter Three), and the Executive Summary. The Water Supply Assessment constitutes the area's problem statement, and serves as the basis for the balance of the planning work. The Assessment has been designed to evaluate water supply conditions and to identify areawide water system issues, concerns and needs.

The second component of the Areawide Supplement consists of the delineation of Exclusive Service Area Boundaries. During this phase of the process, each utility (WUCC member) within the management area has been given the opportunity to define the area that the utility is committed to serve in the future. The following factors have been used in establishing exclusive service area boundaries:

- o existing water service area
- o land use plans, zoning regulations and growth trends
- o physical limitations to water service
- o political boundaries
- o water company rights as established by statute, special act or administrative decisions
- o system hydraulics, including potential elevations and pressure zones
- o ability of a water system to provide a pure and adequate supply of water now and in the future

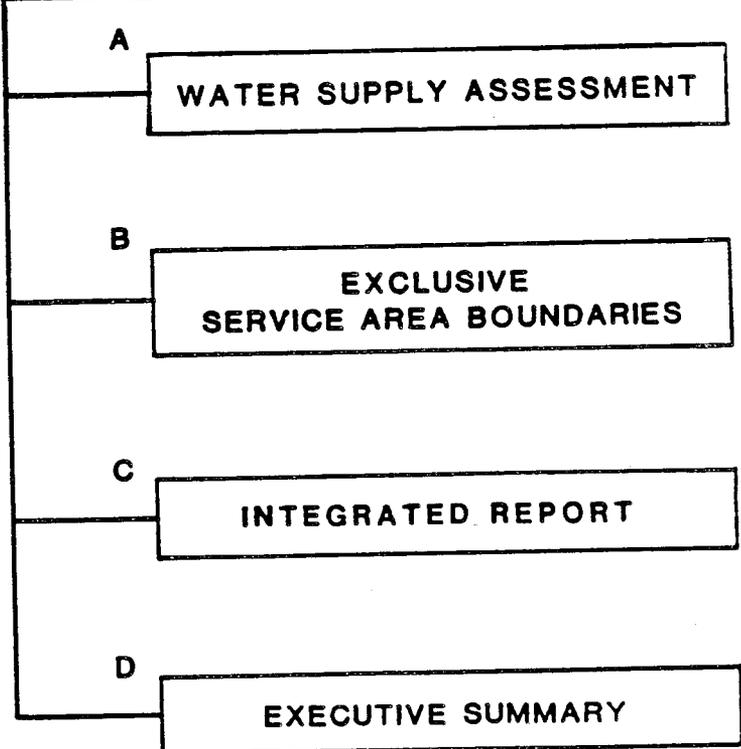
The third component of the Areawide Supplement is the Integrated Report, which is designed to provide an overview of the individual public water systems within the management area; to address the areawide water supply issues, concerns and needs identified in the Water Supply Assessment; and to promote cooperation among public water systems. This report, by law, must address at least the following:

- o population, consumption and safe yield projections
- o compatibility with land use plans

**COORDINATED WATER SYSTEM PLAN**

**INDIVIDUAL  
WATER SYSTEM PLANS  
OF EACH  
PUBLIC WATER SYSTEM**

**AREAWIDE SUPPLEMENT**



**PROJECT SCHEDULE**

| <b><u>ITEM</u></b>    | <b><u>TIME FROM<br/>PROJECT START</u></b> |
|-----------------------|-------------------------------------------|
| <b>A</b>              | <b>6 MONTHS</b>                           |
| <b>B</b>              | <b>12 MONTHS</b>                          |
| <b>C &amp; D</b>      | <b>18 MONTHS</b>                          |
| <b>FINAL<br/>PLAN</b> | <b>24 MONTHS</b>                          |

**FIGURE 3  
COORDINATED  
WATER SYSTEM PLAN**

- o alternative water resources for future supply needs
- o interconnection between public water supply systems
- o joint management or ownership of facilities
- o satellite management program
- o minimum design standards
- o financial data related to regionally significant projects
- o other uses of water resources

This Executive Summary represents the fourth and final component of the Areawide Supplement, and is designed to serve as an abbreviated overview of the Coordinated Water System Plan for the management area. The regulations for the coordinated planning process require that the Executive Summary include the following information:

- o maps of existing and potential service areas and exclusive service area boundaries
- o maps of existing or future sources of supply
- o a summary of the water supply assessment for the area
- o a summary of present and projected populations, water demands, and safe yields
- o a summary of plans for interconnections, joint use facilities, and satellite management
- o a summary of the potential impact of the plan on other uses of water resources
- o pertinent financial information
- o tables of contents for other components of the Areawide Supplement

Each of these items is discussed or included herein, along with other relevant summary information. In reviewing this Executive Summary and the other components of the Areawide Supplement, please remember that these documents represent the consensus of the active members of the WUCC, and are being presented as the WUCC's recommendations for future regional planning and action regarding water supply in the Upper Connecticut River Management Area.

## SECTION TWO

### EXCLUSIVE SERVICE AREAS

#### 2.1 EXCLUSIVE SERVICE AREA DECLARATION PROCESS

The implementing legislation for the coordinated water system planning process requires that the WUCC member utilities establish areas for future service following delineation of existing service area boundaries (the existing service areas are shown on Plates 1A and 1B which are included in the map pockets inside the back cover of this report). The areas for future service are designated as a utility's "exclusive service area," which by legislative definition means "an area where public water is supplied by one system". The regulations stipulate that, in establishing exclusive service area boundaries, the WUCC shall:

- o allow utilities to maintain existing service areas;
- o not leave areas as unserved islands, unless it can be demonstrated that there is not and will be no future need for public water service; and
- o not allow new service areas or main extensions which create duplication or overlap of service

The various factors which utilities must use in determining their exclusive service area boundaries were listed in Section One. The manner in which a utility serves customers in its exclusive service area may include development of supply sources, main extensions, or satellite management.

In accordance with the requirements of Section 25-33h-1(c)(6), all WUCC members, municipalities, and interested individuals or groups in the Upper Connecticut River Public Water Supply Management Area were notified as to the need for utilities to delineate their exclusive service areas or potentially waive their right for future expansion beyond their existing service area boundaries. Notification means included June 3, 1987 letters to all WUCC members, local municipal officials, and interested parties, as well as a legal notice in the June 15, 1987 Hartford Courant and a June 27, 1987 press release. Specific responses to the requests made of WUCC members were required by September 14, 1987.

To simplify the process of defining exclusive service area boundaries, the WUCC agreed to rely on a standardized mapping system provided by DEP. As a result, exclusive service area boundaries were submitted at various scales, mapped at 1:24,000, and incorporated into DEP's Geographic Information System at the same scale. These 1:24,000 maps were also used to prepare the 1:50,000 scale maps (Plates 2A and 2B) which accompany this document, and provide an overview of all exclusive service areas in the Upper Connecticut River Management Area. In reviewing these maps, please note that the exclusive service areas of several utilities encompass areas which have been considered by local, regional, and State planners to remain in a "non-urban" land use category. It is likely that these non-urban areas will continue to draw whatever potable supplies are required from individual wells, and their inclusion within an exclusive service area should not be construed as implying that they will eventually be served by a public water system.

DOHS expects utilities to justify within their individual plans how they will provide future service to their exclusive service areas. Thus, the lack of approved individual plans may jeopardize the acceptability of the exclusive service areas set forth herein. In order to not delay the approval process, all utilities will, at a minimum, maintain their existing service area, and each utility's designated exclusive service area as set forth herein will be reserved for that utility (presuming there are no outstanding conflicts) until final approval of the utility's individual plan. In the interim, competing utilities are prohibited from making a counterclaim or providing service to customers in another utility's reserved exclusive service area.

When a utility amends its exclusive service area via changes in its individual plan update or other unusual circumstances, its exclusive service area boundary must also be revised. Revisions may also occur as a result of regulatory agency or public review of the individual plans prior to their finalization and/or as a result of public comments during review of the overall coordinated plan. Such changes must be approved by the WUCC to ensure consistency with the Coordinated Plan, and must be distributed for review in the same manner as the original Plan. These changes will also require revisions to the utility's Statement of Confirmation of Service Boundaries and to the exclusive service area

boundary map kept on file at DOHS and DPUC. Regardless of other changes made, the transfer of a utility's exclusive service area to another entity occurs only with the sale of the utility.

SECTION THREE  
WATER SUPPLY ASSESSMENT/  
INTEGRATED REPORT

3.1 INTRODUCTION

Chronologically, the Water Supply Assessment and the Integrated Report were the first and last elements prepared as a part of the Areawide Supplement, with the Exclusive Service Areas report and the draft individual plans prepared in the interim period. The Water Supply Assessment provides baseline system descriptions and data for the Management Area, and develops a problem statement to be addressed in the Intergrated Report. The Integrated Report provides WUCC-recommended solutions to the problems noted in the Assessment, as well as an update of the data and projections of the Assessment based on the information provided in the individual plans and discussions among WUCC members. Both the Water Supply Assessment and the Integrated Report are briefly reviewed in the following paragraphs.

3.2 WATER SUPPLY ASSESSMENT

The Upper Connecticut River Water Supply Assessment addressed the five criteria enumerated in the Coordinated Planning regulations, as well as a sixth criterion requested by the WUCC. These are as follows:

1. Description of existing water supply systems
2. Availability and adequacy of future sources
3. Existing service area boundaries
4. Land use and population trends
5. Status of water system planning, land use planning, and coordination between water systems.
6. Identification of key water supply problems  
(criterion added by the WUCC)

The findings of the Assessment in each of these areas are briefly summarized in the following sections.

3.2.1 Existing Water Supply Systems

The service area boundaries for the existing utilities in the Upper Connecticut River Management Area are shown on Plates 1A and 1B. In all, 86 utilities were eligible for representation on the Upper Connecticut WUCC at the time the Assessment was prepared. This total was reduced to 85 with the purchase of the Vernon Water Department by

the Connecticut Water Company, with three utilities (the Berlin Water Control Commission and the Worthington and Kensington Fire Districts) submitting a single consolidated individual plan. Of the original 86, 20 have a total customer base of greater than 1,000, three have only watershed area or a supply source in the area, and two others (Meriden Water Department and Torrington Water Co.) collectively provide water to about 209 people within the bounds of the Management Area. Of the remaining 61 utilities, 13 serve a population ranging from 201-500 customers, and 48 serve a customer base of fewer than 200. Thus, about 20 percent of the area's utilities provide the bulk of the water to the utility-supplied customers, with one utility, the MDC, serving nearly 50 percent.

Wells constitute the vast majority, in terms of number of sources, of the supplies for the area's utilities. Characteristic of the geology of this area, about one-third of the utilities supplying ground water use wells tapping sand and gravel aquifers, while the remainder rely on lower yielding bedrock wells. Although wells constitute the majority of the supply sources, more than half of the area's utility customers receive water from surface water supplies, since some of the larger utilities (e.g., MDC, New Britain Water Dept., Manchester Water Dept., and Bristol Water Dept.) use reservoir supplies.

In general, the majority of the utilities in the Upper Connecticut Area have not experienced serious water quality problems. Many of the reported problems are associated with EDB (ethylene dibromide) contamination in wells, resulting from agricultural use of this pesticide. Other groundwater supplies have been contaminated with volatile organic compounds (VOC's) used in many manufacturing processes.

In addition to these scattered contamination problems, a variety of concerns have been evidenced (especially for smaller systems) in terms of system reliability and adequacy of service. Various utilities experience supply difficulties (low pressure) under high flow demand conditions due either to a combination of inadequate supply and/or storage or due to old or inadequately sized distribution piping.

Many utilities also do not have alternate sources available in the event their prime groundwater supply is lost. Some of these rely on either a single rock well or a greater number of rock wells which have

marginal "safe yields." When a contamination problem or loss of capacity occurs, the users of the affected system may be without potable water for an extended period until a new or alternate supply is obtained, or until an effective treatment system is identified and installed. Single source wells also can be impacted by short-term outages resulting from routine well maintenance, pump replacement or other minor problems. The total potential yield of a surface supply may not be realized if water loss occurs (via dam seepage or raw water transmission main leakage) or if insufficient transmission, treatment or distribution of the source water is provided.

Other problems observed routinely throughout the Management Area (particularly for smaller systems) include the lack of emergency power, old or inadequately sized distribution piping, inadequate storage, and a lack of fire fighting capability. (Many of the smaller systems were not designed to incorporate fire fighting, and rely on alternate means such as on-site ponds or coverage by community tanker trucks.)

Many utilities within the Upper Connecticut River area maintain an ongoing or regular planning process to identify major facility needs and to develop capital budgets to address these needs. Various utilities have recently completed or are in the process of design or construction of water treatment facilities. Others have identified the need for additional supply sources and have begun investigations to locate and/or develop these sources. It is also anticipated that recently proposed EPA regulations may place additional capital improvement burdens on some of the area's utilities.

### 3.2.2 Availability and Adequacy of Future Sources

Significant potential water supply sources have, at least in a broad sense, been addressed in prior reports or studies, with other sources noted by the various utilities who have prepared individual plans. Generally, these sources consist of all significant stratified drift aquifers, surface water impoundments, and the Area's streams and rivers. Typically, the potential aquifer yields are such that they are suitable for only the local area in which they are found. The river and lake diversion projects have a much larger single source safe yield, and represent potential supplies of a regional significance.

The major surface and groundwater sources identified have varying water quality classifications. Under State law those surface water sources which are designated as Class B are prohibited for use as a water supply, although under this planning process their consideration as potential sources is permitted. In addition to the State's water quality classification issue, many other factors can come into play when considering a surface water body for water supply purposes. These include recreational uses, fisheries, hydroelectric generation, and philosophical differences or legal restraints regarding the transport of water from one political entity to another. Additionally, watershed area for surface supplies can be very large and, thus, the implementation of protection strategies for these watersheds is difficult. Development pressures can lead to conflicting land uses within watershed areas, and the proper control of the disposal of potential contaminants throughout such a wide area is difficult, if not impossible.

Groundwater sources are covered by a water quality classification system similar to that for surface supplies, although the delineation of the nonuse of a Class GB groundwater is not as restrictive as that for a Class B surface water. In the case of groundwaters, Class GB aquifers are degraded or potentially degraded groundwater sources that may serve as public or private supplies with proper treatment, as needed.

Although the Assessment reviewed, in a preliminary way, the estimated yield of these potential sources and their relationship to system and areawide water demands, these values were refined in the Integrated Report following review of the individual plans prepared by the various utilities. This preliminary nature of the Assessment's projections should be kept in mind when reviewing this document, and conclusions should not be drawn without referencing the updated information in the Integrated Report.

### 3.2.3 Land Use and Population Trends

The population of the Upper Connecticut River Public Water Supply Management Area is projected to increase by about 21 percent from 1985 to 2030. OPM population projections through 2030 predict that two communities (New Britain and West Hartford) will continue to decrease in

population over this time frame, while East Hartford and Hartford are projected to have modest to average population increases. Thus, the majority of growth in the area will continue to take place in those communities presently outside of the urban core.

From a land use perspective, this apparent migration from the central city areas has been reflected in population growth and development around the central urbanized core. A loss of agricultural land has been seen in communities to the north, east and west of Hartford and may have been part of the stimulus for the State's farmland protection program. The smaller communities around this central core have experienced stresses on community services, with many building new schools to cope with the residential influx of younger families. Some redevelopment in the Hartford central city area appears to have slowly brought younger people back into the City - a fact reflected in the modest growth projected through 2030.

#### 3.2.4 Status of Water System and Land Use Planning and Coordination Between Public Water Systems

##### 3.2.4.1 Water System Planning

The extent of water system planning by the utilities in the Upper Connecticut River Public Water Supply Management Area varies considerably. Typically, for those utilities servicing residential areas or multi-family housing complexes which have no plans or space for growth, little planning is really necessary.

On the other hand, those systems servicing a larger and more diverse customer base normally conduct planning either with an internal engineering staff or utilize outside engineering consultants. These utilities typically assess their need for future water supplies, and develop capital improvement programs for upgrading existing treatment and distribution facilities. All utilities which serve over 1,000 persons have also been required to prepare an individual plan, pursuant to Connecticut General Statutes Section 25-32d, which will become part of the Coordinated Water System Plan.

#### 3.2.4.2 Land Use Planning

Land use planning is typically carried out from a community perspective and takes the character of a community's plan of development, as reflected in local zoning regulations. These plans and regulations are designed to set the framework for growth within a community, and tend to reflect the desires of local residents as implemented through the community's governing bodies.

In the Upper Connecticut River Public Water Supply Management Area, the plans of development are in various stages of completion. From a water supply perspective, many older planning efforts did not place particular emphasis upon the potential incompatibility of water resource needs and development with surface supply watersheds or, more critically, groundwater recharge areas. However, recent legislation, Public Act 85-279 entitled "An Act Concerning the Protection of Public Water Supplies," requires municipal planning and zoning commissions to include consideration of existing and potential surface and groundwater source protection in their local plans and regulations. Since water supply issues can commonly transcend community borders, a regional perspective is helpful. Public Acts 84-502 and 85-535, which are administered by DOHS, require that individual utility water supply plans and the area-wide supplement to the Coordinated Plan consider land use planning. Additionally, this perspective can be provided by the regional planning organizations (planning agency, council of elected officials, or council of government) whose funding may in large part be derived from the member communities that they serve as well as from state and federal grant monies.

#### 3.2.4.3 Coordination Between Public Water Systems

There is a good degree of coordination among utilities within the Upper Connecticut River Area. A number of interconnections exist whereby one utility wholesales water to another on a continuous basis or as an emergency supply. Additional interconnections are planned in the future. Utilities have also provided main extensions from one town to another to provide water service where well supplies have become contaminated. Utilities frequently share equipment when the need arises and share ideas and information by participating in organizations such as CWWA, NEWWA and AWWA. On the other hand, situations do occur where

better cooperation or communication is needed so that two or more utilities do not expend resources to develop a new source of supply or serve an area that will conflict with another utility.

### 3.2.5 Identification of Key Water Supply Problems Within the Upper Connecticut River Public Water Supply Management Area

The Water Supply Assessment identified various key problems within the Upper Connecticut Management Area. These included the following:

#### 1. Inconsistent Data

One of the more prevalent problems which came to light during the development of the Water Supply Assessment for the Upper Connecticut River Area has been the inconsistency of the available utility data base. The questionnaire sent as a part of this planning process was designed to try to fill this void, and succeeded to some extent. However, about 40 percent of the utilities did not respond or did not provide the information requested. This was more typical of the smaller utilities, since in many cases they do not collect the requested data or were unable to respond for lack of resources.

#### 2. Regulatory Burden

Many regulatory requirements are placed upon utilities regardless of their size. What may be easy or less burdensome for those organizations with a full-time staff may be entirely overburdening for those who function with a minimal, part-time staff commitment.

#### 3. Competition Between Utilities

Overlap of franchise areas exists in the Upper Connecticut River Area, and represents a potential conflict between two utilities who wish to serve the same area. This is a specific area addressed by the comprehensive planning process, with the potential for conflict eliminated by the designation of exclusive service areas.

#### 4. Potential Groundwater Problems

The potential for groundwater contamination affects water supply reliability and may influence growth by requiring public water system expansion, groundwater treatment, or interconnection to meet the needs of individual homeowners or utilities experiencing contamination. Furthermore, an understanding of existing contaminated groundwater sources or areas containing probable contamination sources will become

increasingly important in siting new wells, as will the need for comprehensive groundwater protection policies for the area's critical aquifers.

5. Barriers to the Use of Some Supplies

Although the State's diversion permit process is designed to address the issue of competing use, individuals or groups can generate unique sources of opposition and elevate the level of controversy. Consequently, uncertainty exists as to whether some of the potential surface water resources of the Upper Connecticut River Management Area can be developed and, if they can, what degree of utilization will be allowed. This is particularly the case with regard to the West Branch (Farmington River) Reservoirs of the Metropolitan District, which are the largest untapped future source of Class AA supply in the region. Groundwater supply sources also fall under the diversion permit process, and have most recently been an object of public concern due to competing uses, including concerns related to the maintenance of minimum flows in nearby streams. There has also been sentiment expressed by individual WUCC members that a water body should not be excluded from use for water supply purposes due to its State Water classification (Class B) if its quality meets Federal and State criteria for a drinking water source.

6. Aging and/or Substandard Infrastructure

The Assessment noted that continued use of water supply or distribution piping which is at, or near, the end of its useful life represents a liability to reliable water supply. Eventually such equipment or infrastructure must be replaced at increased cost to the system users.

7. Financing

In the Upper Connecticut River Public Water Supply Management Area there is a broad cross-section of types of utility structures, including utilities which are essentially an adjunct of a residential or multi-family housing complex, privately or investor-owned companies, and municipal utilities. This difference in physical structure will also impact the rate structures and financing methods available to these utilities. Regardless of the methodology used to obtain financing, the inability to secure adequate monies can impact utilities in a variety of ways. These include the inability to make needed system improvements

for replacement of aged facilities (maintenance), and improvements for system expansion or increased reliability (an interconnection or new supply source).

8. Lack of Local Ordinances for Water Supply Protection

Development pressures have typically outpaced most communities' ability to deal with the lesser understood process of identifying and protecting water supply sources. Thus, conflicts of land use and water supply have occurred, and have led to a situation where potential contamination sources have been located within aquifer recharge areas or water supply watersheds.

9. System and Source Reliability

A number of utilities have single source supplies or wells that draw from similar depths, while others do not have sufficient storage and/or pumping capacity to meet peak demands or have system constrictions which impact their ability to deliver sufficient fire flows. All systems require preventative maintenance and replacement schedules so that system reliability can be maximized. In addition, a number of utilities do not have standby power which will enable them to operate adequately during power loss.

10. Lack of Coordination Between Utilities and Communities

In many ways the lack of coordination between utilities and communities centers around land use and water supply protection. This problem appears to revolve around either the general lack of communication or lack of defined mechanisms or procedures for communicating information.

11. Lack of Adequate Incentive to be a Satellite Manager

An investor-owned company is obviously not anxious to become an owner of a financially troubled utility if there is no reasonable way to recoup their potential investment. Also, there is a recognition that the 1986 tax law revisions may make it even less attractive to invest in other utilities. Until these financial issues become clearer, there may be a reluctance on the part of privately-owned utilities to move too quickly toward complete satellite management or takeover of troubled systems.

12. Need for Technical and/or Managerial Support/Information

It is apparent that there are many utilities in the Upper Connecticut River Public Water Supply Management Area which were not created strictly for the purpose of water supply. Typically, these utilities evolved from a need to supply water to a residential development or multi-family housing complex which, by definition, are water supply utilities. Therefore, there is a significant need within those organizations who have the desire to respond to the requirements placed before them, but do not have sufficient managerial or informational resources to draw from.

13. Population Projections

Much concern has been expressed in WUCC meetings and from public comment that the OPM population projections mandated for use by the legislature are not sensitive to recent changes in the population of some communities and, thus, may not properly reflect future growth from a water supply perspective. Additionally, internal population estimates are used by DOHS for planning purposes that are not consistent with the OPM projections.

14. Water Sources on Public Property

Presently, no legislation exists which directly addresses the issue of utilizing ground or surface water sources which are located on public lands. Consequently, utilities desiring to develop such potential sources have no defined mechanism for attempting to enter into agreements with public bodies to use these sources of supply.

### 3.3 INTEGRATED REPORT

As noted previously, the Integrated Report followed up on the work embodied in the Water Supply Assessment and the Exclusive Service Areas report using supplementary data obtained from the draft individual plans prepared by the various utilities. The Integrated Report consists of eight sections; an Introduction and the following:

- o Population, Consumption, and Safe Yield Projections
- o Alternative Water Resources for Future Supply Needs
- o Land Use Compatibility
- o Coordination and Cooperation Between Water Utilities
- o Minimum Design Standards
- o Financial Data
- o Overview of Problems and Proposed Solutions

The discussions and findings of each of these sections are briefly reviewed in the following paragraphs.

#### 3.3.1 Population, Consumption, and Safe Yield Projections

Table 3.1 provides total and serviced populations and population projections for the 35 communities and 83 utilities in the Upper Connecticut Management Area for the years 1986, 1992, 2000, and 2030. (There are actually 85 utilities in the Area - this figure was reduced to 83 in the Integrated Report by treating the Berlin Water Control Commission, Kensington Fire District, and Worthington Fire District as a single entity.)

As shown, total populations range from 892,561 in 1986 to 1,077,700 in 2030, while serviced populations for the same years range from 759,298 to 995,131. Please note that, in some instances, serviced populations for 2030 are somewhat higher than the corresponding total population. This apparent discrepancy results from the fact that OPM projections were used for total populations, while serviced populations were derived from the draft individual plans prepared by the utilities. As these plans are finalized and the OPM projections are updated, it is expected that these differences will be resolved. The final agreed-to population figures will then be incorporated by the WUCC into the next revision of the Areawide Supplement.

Table 3.2 is structured similar to Table 3.1, and provides residential and nonresidential consumption estimates for each utility.

TABLE 3.1  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POPULATION PROJECTIONS BY WATER UTILITY

| UTILITY                      | COMMUNITIES SERVED | TOTAL POPULATION(1) |        |        |        | SERVICED POPULATION(2) |       |       |        |
|------------------------------|--------------------|---------------------|--------|--------|--------|------------------------|-------|-------|--------|
|                              |                    | 1986                | 1992   | 2000   | 2030   | 1986                   | 1992  | 2000  | 2030   |
| Avery Heights Water Assoc.   | South Windsor      | 18290               | 19220  | 20580  | 25500  | 800                    | 835   | 900   | 1115   |
| Avon Old Farms School        | Avon               | 12400               | 13400  | 14200  | 18900  | 430                    | 461   | 492   | 655    |
| Avon Water Company           | Avon               | 12809               | 14610  | 16441  | 21141  | 5858                   | 7015  | 8325  | 14773  |
|                              | Simsbury           | 22750               | 22880  | 26160  | 33500  | 312                    | 312   | 562   | 1485   |
|                              | Total              | 35559               | 37490  | 42601  | 54641  | 6170                   | 7327  | 8887  | 16258  |
| Berlin*                      | Berlin             | 15600               | 15410  | 15840  | 17200  | 12004                  | 12040 | 12910 | 15480  |
| Briarwood College            | Southington        | 38180               | 39860  | 41580  | 48900  | 450                    | 467   | 490   | 576    |
| Bristol Water Dept.          | Bristol            | 60250               | 60000  | 61470  | 67800  | 52328                  | 56400 | 59000 | 67100  |
|                              | Burlington         | 6020                | 6310   | 6540   | 7900   | 43                     | 43    | 43    | 43     |
|                              | Total              | 66270               | 66310  | 68010  | 75700  | 52371                  | 56443 | 59043 | 67143  |
| Burnham Acres Water Assoc.   | South Windsor      | 18290               | 19220  | 20580  | 25500  | 124                    | 129   | 140   | 173    |
| CWC-Collinsville             | Avon               | 12850               | 13650  | 14200  | 18900  | 386                    | 683   | 1278  | 2835   |
|                              | Burlington         | 6275                | 6380   | 6540   | 7900   | 126                    | 128   | 131   | 158    |
|                              | Canton             | 7975                | 8245   | 8650   | 10300  | 1994                   | 2391  | 3028  | 5150   |
|                              | Harwington         | 5390                | 5520   | 5920   | 7500   | 0                      | 0     | 0     | 225    |
|                              | Total              | 32490               | 33795  | 35310  | 44600  | 2506                   | 3202  | 4437  | 8368   |
| CWC-Northern Div./Somers     | Somers             | 8910                | 8960   | 9030   | 10000  | 1337                   | 1971  | 2619  | 4900   |
| CWC-Western & Rockville      | East Granby        | 4365                | 4555   | 4870   | 6100   | 87                     | 137   | 195   | 305    |
|                              | East Windsor       | 9180                | 9375   | 9680   | 11000  | 3121                   | 3656  | 4453  | 6050   |
|                              | Ellington          | 10340               | 10490  | 11710  | 14900  | 1034                   | 1364  | 3513  | 8940   |
|                              | Enfield            | 44200               | 46500  | 50200  | 61300  | 20774                  | 24180 | 28614 | 42910  |
|                              | South Windsor      | 19900               | 20170  | 20580  | 25500  | 7164                   | 7866  | 9673  | 11985  |
|                              | Suffield           | 9595                | 9695   | 9860   | 10800  | 4414                   | 4848  | 5423  | 5940   |
|                              | Vernon             | 29400               | 30600  | 32530  | 39400  | 13524                  | 14382 | 17566 | 21276  |
|                              | Windsor Locks      | 12270               | 12289  | 12320  | 12800  | 10307                  | 11060 | 11088 | 11520  |
|                              | Total              | 139250              | 143674 | 151750 | 181800 | 60425                  | 67493 | 80525 | 108926 |
| Chelsea Common Assoc. Inc.   | East Granby        | 4350                | 4616   | 4870   | 6100   | 132                    | 139   | 148   | 185    |
| Chestnut Hill Hts Water Assn | Glastonbury        | 26610               | 28810  | 31830  | 43000  | 21                     | 22    | 25    | 34     |
| Chippanydale Assoc.          | Bristol            | 59090               | 60290  | 61470  | 67800  | 35                     | 36    | 36    | 40     |
| Ciccio Court                 | Plainville         | 16990               | 17450  | 17500  | 19400  | 56                     | 57    | 58    | 64     |
| Connecticut Correct Inst     | CCI                | 2821                | 3500   | 3500   | 3500   | 2821                   | 3500  | 3500  | 3500   |
| Cope Manor                   | Plainville         | 16990               | 17450  | 17500  | 19400  | 61                     | 62    | 63    | 70     |
| Country Gardens Apts.        | Somers             | 8720                | 8948   | 9030   | 10000  | 74                     | 76    | 77    | 85     |

\* Includes the Kensington and Worthington Fire Districts and the Berlin Water Control Commission

TABLE 3.1  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POPULATION PROJECTIONS BY WATER UTILITY

| UTILITY                     | COMMUNITIES SERVED | TOTAL POPULATION(1) |       |       |       | SERVICED POPULATION(2) |       |       |       |
|-----------------------------|--------------------|---------------------|-------|-------|-------|------------------------|-------|-------|-------|
|                             |                    | 1986                | 1992  | 2000  | 2030  | 1986                   | 1992  | 2000  | 2030  |
| East Granby Village Condos  | East Granby        | 4350                | 4616  | 4870  | 6100  | 301                    | 317   | 337   | 422   |
| East Windsor Housing Auth   | East Windsor       | 9340                | 9620  | 9680  | 11000 | 72                     | 74    | 75    | 85    |
| Ellington Acres Water Co    | East Windsor       | 9340                | 9620  | 9680  | 11000 | 0                      | 0     | 0     | 1100  |
|                             | Ellington          | 10480               | 11152 | 11710 | 14900 | 2205                   | 2518  | 2927  | 5960  |
|                             | Somers             | 8716                | 8950  | 9030  | 10000 | 0                      | 537   | 903   | 2000  |
|                             | Total              | 28536               | 29722 | 30420 | 35900 | 2205                   | 3055  | 3830  | 9060  |
| Ellsworth Estates           | East Windsor       | 9340                | 9620  | 9680  | 11000 | 300                    | 308   | 311   | 353   |
| Ethel Walker School         | Simsbury           | 22400               | 23880 | 26160 | 33500 | 266                    | 280   | 311   | 398   |
| Farmington Line West Condos | Burlington         | 6020                | 8404  | 6540  | 7900  | 53                     | 55    | 58    | 70    |
| Farmington Woods Water Co   | Avon               | 12400               | 13400 | 14200 | 18900 | 1230                   | 1319  | 1409  | 1875  |
|                             | Farmington         | 16770               | 17050 | 17610 | 19200 | 470                    | 477   | 494   | 538   |
|                             | Total              | 29170               | 30450 | 31810 | 38100 | 1700                   | 1797  | 1902  | 2413  |
| Grant Hill Associates, Inc  | Bloomfield         | 19670               | 20630 | 22110 | 27200 | 92                     | 96    | 103   | 127   |
| Hazardville Water Company   | East Windsor       | 9270                | 9600  | 9680  | 11000 | 0                      | 0     | 0     | 66    |
|                             | Enfield            | 44290               | 47250 | 50200 | 61300 | 19045                  | 19845 | 20582 | 25133 |
|                             | Somers             | 9270                | 8930  | 9030  | 10000 | 0                      | 1518  | 1716  | 2600  |
|                             | Total              | 62830               | 65780 | 68910 | 82300 | 19045                  | 21363 | 22298 | 27799 |
| High Manor Mobile Home Park | Vernon             | 28930               | 30438 | 32530 | 39400 | 235                    | 245   | 264   | 320   |
| Higley Village              | East Granby        | 4350                | 4616  | 4870  | 6100  | 98                     | 103   | 110   | 137   |
| Hillsdale Water Co-op       | South Windsor      | 18290               | 19220 | 20580 | 25500 | 23                     | 24    | 26    | 32    |
| Hilltop, Inc.               | Farmington         | 16770               | 17050 | 17610 | 19200 | 88                     | 89    | 92    | 101   |
| Jensens Forest Hills Mobile | Southington        | 38180               | 39860 | 41580 | 48900 | 376                    | 390   | 409   | 482   |
| Juniper Club, Inc.          | Bloomfield         | 19670               | 20630 | 22110 | 27200 | 69                     | 72    | 78    | 95    |
| Kenmore Road Assoc.         | Bloomfield         | 19670               | 20630 | 22110 | 27200 | 110                    | 114   | 124   | 152   |
| Kimberly Lane Water Assoc.  | Glastonbury        | 26610               | 28810 | 31830 | 43000 | 25                     | 27    | 30    | 40    |
| Lakeview of Farmington      | Farmington         | 16770               | 17050 | 17610 | 19200 | 500                    | 508   | 525   | 572   |
| Latimer Farms Water Assn    | Simsbury           | 22400               | 23880 | 26160 | 33500 | 28                     | 30    | 33    | 42    |
| Liebman Apartments          | Ellington          | 10480               | 11152 | 11710 | 14900 | 46                     | 49    | 51    | 65    |
| Little Brook Road Supply    | New Hartford       | 5100                | 5272  | 5350  | 6100  | 50                     | 52    | 52    | 60    |
| Llynwood, Inc.              | Vernon             | 28930               | 30438 | 32530 | 39400 | 32                     | 33    | 36    | 44    |

TABLE 3.1  
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POPULATION PROJECTIONS BY WATER UTILITY

| UTILITY                      | COMMUNITIES SERVED | TOTAL POPULATION(1) |        |        |        | SERVICED POPULATION(2) |        |        |        |
|------------------------------|--------------------|---------------------|--------|--------|--------|------------------------|--------|--------|--------|
|                              |                    | 1986                | 1992   | 2000   | 2030   | 1986                   | 1992   | 2000   | 2030   |
| Manchester Water Department  | Glastonbury        | 26610               | 28810  | 31830  | 43000  | 750                    | 774    | 845    | 1125   |
|                              | Manchester         | 51100               | 52700  | 54500  | 60500  | 48010                  | 50000  | 52900  | 59900  |
|                              | South Windsor      | 18290               | 19220  | 20580  | 25500  | 106                    | 109    | 120    | 160    |
|                              | Vernon             | 28930               | 30438  | 32530  | 39400  | 210                    | 217    | 235    | 315    |
|                              | Total              | 124930              | 131168 | 139440 | 168400 | 49076                  | 51100  | 54100  | 61500  |
| Maple Ridge Farms Water Assn | Farmington         | 16770               | 17050  | 17610  | 19200  | 93                     | 94     | 98     | 106    |
| Meadowbrook Apartments       | Ellington          | 10480               | 11152  | 11710  | 14900  | 58                     | 61     | 65     | 82     |
| Meriden Water Dept.          | Berlin             | 15600               | 15940  | 15840  | 17200  | 4                      | 4      | 4      | 4      |
|                              | Southington        | 38180               | 39860  | 41580  | 48900  | 130                    | 135    | 142    | 167    |
|                              | Total              | 53780               | 55800  | 57420  | 66100  | 134                    | 139    | 146    | 171    |
| Metacomet Village            | East Granby        | 4350                | 4616   | 4870   | 6100   | 62                     | 65     | 69     | 87     |
| Metropolitan District Comm   | Bloomfield         | 19670               | 20630  | 22110  | 27200  | 20140                  | 20470  | 22110  | 32000  |
|                              | East Granby        | 4350                | 4616   | 4870   | 6100   | 0                      | 110    | 1500   | 2100   |
|                              | East Hartford      | 53900               | 55340  | 57060  | 64000  | 52180                  | 55100  | 57060  | 65000  |
|                              | Farmington         | 16770               | 17050  | 17610  | 19200  | 1200                   | 1500   | 1700   | 1900   |
|                              | Glastonbury        | 26610               | 28810  | 31830  | 43000  | 16600                  | 17760  | 19860  | 40000  |
|                              | Hartford           | 136790              | 139390 | 143390 | 153900 | 135080                 | 138890 | 143390 | 147000 |
|                              | Manchester         | 50700               | 51460  | 52760  | 57000  | 1000                   | 1500   | 1500   | 1500   |
|                              | Newington          | 29840               | 31040  | 32140  | 37500  | 29350                  | 30840  | 32140  | 39000  |
|                              | Rocky Hill         | 16960               | 19160  | 21560  | 32300  | 15550                  | 18860  | 21560  | 25000  |
|                              | South Windsor      | 18290               | 19220  | 20580  | 25500  | 4500                   | 4700   | 5070   | 6270   |
|                              | West Hartford      | 61230               | 61138  | 60070  | 58700  | 61180                  | 61210  | 60070  | 62000  |
|                              | Wethersfield       | 26350               | 26630  | 27010  | 28500  | 27410                  | 26570  | 27010  | 32000  |
|                              | Windsor            | 26620               | 27980  | 29700  | 36500  | 27040                  | 27740  | 29700  | 33000  |
|                              | Windsor Locks      | 12460               | 12620  | 12320  | 12800  | 0                      | 0      | 0      | 0      |
| Total                        | 500540             | 515084              | 533010 | 602200 | 391230 | 405250                 | 422670 | 486770 |        |
| Neipsic Woods Section 3      | Glastonbury        | 26610               | 28810  | 31830  | 43000  | 28                     | 30     | 33     | 45     |
| Neipsic Woods Water Assoc.   | Glastonbury        | 26610               | 28810  | 31830  | 43000  | 65                     | 70     | 78     | 105    |
| New Britain Water Dept.      | Berlin             | 15600               | 15940  | 15840  | 17200  | 205                    | 205    | 205    | 205    |
|                              | Farmington         | 18430               | 17130  | 17610  | 19200  | 406                    | 560    | 760    | 1500   |
|                              | New Britain        | 74240               | 72936  | 70810  | 66700  | 74240                  | 72936  | 70810  | 66700  |
|                              | Newington          | 29350               | 30940  | 32140  | 37500  | 673                    | 910    | 1090   | 1900   |
|                              | Plainville         | 16990               | 17450  | 17500  | 19400  | 93                     | 93     | 93     | 93     |
| Total                        | 154610             | 154396              | 153900 | 160000 | 75617  | 74704                  | 72958  | 70398  |        |
| New Hartford Water Dept.     | New Hartford       | 5467                | 5477   | 5575   | 6325   | 1145                   | 1128   | 1349   | 1506   |

TABLE 3.1  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POPULATION PROJECTIONS BY WATER UTILITY

| UTILITY                      | COMMUNITIES SERVED | TOTAL POPULATION(1) |       |       |       | SERVICED POPULATION(2) |       |       |       |
|------------------------------|--------------------|---------------------|-------|-------|-------|------------------------|-------|-------|-------|
|                              |                    | 1986                | 1992  | 2000  | 2030  | 1986                   | 1992  | 2000  | 2030  |
| Oakwood, Inc.                | Glastonbury        | 26610               | 28810 | 31830 | 43000 | 135                    | 144   | 161   | 218   |
| Old Newgate Ridge Water Co.  | East Granby        | 4350                | 4616  | 4870  | 6100  | 121                    | 127   | 136   | 170   |
| Orchard Hill Assoc.          | Bloomfield         | 19670               | 20630 | 22110 | 27200 | 25                     | 26    | 28    | 35    |
| Perwood Assoc., Inc.         | Bloomfield         | 19670               | 20630 | 22110 | 27200 | 55                     | 57    | 62    | 76    |
| Pine Hill, Inc.              | Glastonbury        | 26610               | 28810 | 31830 | 43000 | 18                     | 19    | 22    | 29    |
| Plainville Water Company     | Plainville         | 17120               | 17450 | 17500 | 19400 | 16264                  | 16596 | 16646 | 18546 |
|                              | Southington        | 38180               | 39860 | 41580 | 48900 | 404                    | 404   | 404   | 404   |
|                              | Total              | 55300               | 57310 | 59080 | 68300 | 16668                  | 17000 | 17050 | 18950 |
| Redwood Farms L&M Water Co.  | Manchester         | 50700               | 51460 | 52760 | 57000 | 260                    | 263   | 271   | 292   |
| Reid Treatment Center        | Avon               | 12400               | 13400 | 14200 | 18900 | 30                     | 32    | 34    | 46    |
| Rock Tree Apartments         | Barkhamsted        | 3090                | 3294  | 3490  | 4400  | 58                     | 61    | 66    | 83    |
| Rolling Hills Water Assoc    | Glastonbury        | 26610               | 28810 | 31830 | 43000 | 112                    | 120   | 134   | 181   |
| Salmon Brook Dist Water Dept | Granby             | 8460                | 9020  | 9760  | 12400 | 1000                   | 1057  | 1154  | 1466  |
| School Hill Assoc., Inc.     | East Windsor       | 9340                | 9620  | 9680  | 11000 | 86                     | 88    | 89    | 101   |
| Shaker Heights, Inc.         | Enfield            | 44980               | 47180 | 50200 | 61300 | 135                    | 141   | 151   | 184   |
| Sharon Heights Water Assoc.  | Bloomfield         | 19670               | 20630 | 22110 | 27200 | 75                     | 78    | 84    | 104   |
| Snipsic Village Housing Auth | Ellington          | 10480               | 11152 | 11710 | 14900 | 97                     | 102   | 108   | 138   |
| Somers Elderly Housing Auth  | Somers             | 8720                | 8948  | 9030  | 10000 | 69                     | 71    | 71    | 79    |
| Somersmill Water Assoc.      | Somers             | 8720                | 8948  | 9030  | 10000 | 250                    | 256   | 259   | 287   |
| Southington Water Works      | Southington        | 38580               | 39850 | 41580 | 48900 | 30216                  | 31880 | 33264 | 39120 |
| Tariffville Fire District    | Simsbury           | 22400               | 23880 | 26160 | 33500 | 1980                   | 2088  | 2312  | 2961  |
| Taylor Trailer Park          | Southington        | 38180               | 39860 | 41580 | 48900 | 83                     | 86    | 90    | 106   |
| Torrington Water Co.         | Harwinton          | 5230                | 5574  | 5920  | 7500  | 6                      | 7     | 7     | 9     |
| Towpath Condominiums         | Avon               | 12400               | 13400 | 14200 | 18900 | 120                    | 129   | 137   | 183   |
| Trailsend Company            | Canton             | 8040                | 8404  | 8650  | 7900  | 48                     | 50    | 52    | 61    |
| Turkey Hill Apartments       | East Granby        | 4350                | 4616  | 4870  | 6100  | 250                    | 263   | 280   | 351   |
| Unionville Water Company     | Avon               | (3)                 | (3)   | (3)   | (3)   | (3)                    | (3)   | (3)   | (3)   |
|                              | Burlington         | 6020                | 6310  | 6540  | 7900  | 0                      | 0     | 600   | 3595  |
|                              | Farmington         | 30204               | 31569 | 32632 | 39405 | 6947                   | 11181 | 11944 | 14021 |
|                              | Total              | 36224               | 37879 | 39172 | 47305 | 6947                   | 11181 | 12544 | 17616 |
| Vernon Village, Inc.         | Vernon             | 28930               | 30438 | 32530 | 39400 | 320                    | 334   | 360   | 436   |
| Village Water Co of Simsbury | East Granby        | 4350                | 4616  | 4870  | 6100  | 70                     | 74    | 78    | 98    |
|                              | Granby             | 8460                | 9020  | 9760  | 12400 | 647                    | 684   | 746   | 948   |
|                              | Simsbury           | 22400               | 23880 | 26160 | 33500 | 13832                  | 14585 | 16154 | 20686 |
|                              | Total              | 35210               | 37516 | 40790 | 52000 | 14549                  | 15343 | 16979 | 21733 |

TABLE 3.1  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POPULATION PROJECTIONS BY WATER UTILITY

| UTILITY                    | COMMUNITIES SERVED | TOTAL POPULATION(1) |        |        |         | SERVICED POPULATION(2) |        |        |        |
|----------------------------|--------------------|---------------------|--------|--------|---------|------------------------|--------|--------|--------|
|                            |                    | 1986                | 1992   | 2000   | 2030    | 1986                   | 1992   | 2000   | 2030   |
| Wallens Hill Apartments    | Barkhamsted        | 3090                | 3294   | 3490   | 4400    | 49                     | 52     | 55     | 70     |
| West Hill Lake Water Assoc | New Hartford       | 5100                | 5272   | 5350   | 6100    | 200                    | 206    | 210    | 239    |
| West Service Corp.         | Suffield           | 9590                | 9800   | 9860   | 10800   | 400                    | 408    | 411    | 451    |
| Windsorville Water Assoc.  | East Windsor       | 9340                | 9620   | 9680   | 11000   | 30                     | 31     | 31     | 35     |
| Wintergreen                | Harwinton          | 5230                | 5574   | 5920   | 7500    | 40                     | 42     | 45     | 57     |
| Woodcrest Assoc., Inc.     | Burlington         | 6020                | 6310   | 6540   | 7900    | 63                     | 66     | 68     | 83     |
|                            |                    | 892561              | 920198 | 950880 | 1077700 | 759298                 | 798446 | 842467 | 995131 |

NOTES:

1. Population data from OPM or individual water supply plans, depending on the utility.
2. Service population projections were taken from individual plans, the final Water Supply Assessment, or calculated based on service connections and average household size, depending on the utility.
3. Population served for Avon and Farmington were provided as one number in the individual plan. The Farmington and Avon figures are presented together as Farmington projections.
4. Sum total population figures were taken from OPM projections.

TABLE 3.2  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
CONSUMPTION PROJECTIONS BY WATER UTILITY (1)

| UTILITY                    | COMMUNITIES SERVED | RESIDENTIAL CONSUMPTION |           |           |           | NON-RESIDENTIAL CONSUMPTION |           |           |           |
|----------------------------|--------------------|-------------------------|-----------|-----------|-----------|-----------------------------|-----------|-----------|-----------|
|                            |                    | gpd                     |           |           |           | gpd                         |           |           |           |
|                            |                    | 1986                    | 1992      | 2000      | 2030      | 1986                        | 1992      | 2000      | 2030      |
| Avery Heights Water Assoc. | South Windsor      | 60,000                  | 63,903    | 70,655    | 95,911    | 0                           | 0         | 0         | 0         |
| Avon Old Farms School      | Avon               | 32,250                  | 35,283    | 38,655    | 56,365    | 0                           | 0         | 0         | 0         |
| Avon Water Company         | Avon               | 453,829                 | 526,125   | 624,375   | 1,107,975 | 364,556                     | 545,727   | 720,456   | 1,222,073 |
|                            | Simsbury           | 24,171                  | 23,400    | 42,150    | 111,375   | 19,416                      | 24,272    | 48,636    | 122,844   |
|                            | Total              | 478,000                 | 549,525   | 666,525   | 1,219,350 | 383,972                     | 569,999   | 769,092   | 1,344,917 |
| Berlin                     | Berlin             | 939,313                 | 970,000   | 1,080,000 | 1,490,000 | 850,000                     | 920,000   | 1,070,000 | 1,340,000 |
| Briarwood College          | Southington        | 33,750                  | 35,723    | 38,471    | 49,566    | 0                           | 0         | 0         | 0         |
| Bristol Water Dept.        | Bristol            | 4,040,000               | 5,300,000 | 6,000,000 | 8,800,000 | 1,240,000                   | 1,800,000 | 2,000,000 | 2,900,000 |
|                            | Burlington         | 4,000                   | 4,000     | 4,000     | 6,000     | 0                           | 0         | 0         | 0         |
|                            | Total              | 4,044,000               | 5,304,000 | 6,004,000 | 8,806,000 | 1,240,000                   | 1,800,000 | 2,000,000 | 2,900,000 |
| Burnham Acres Water Assoc. | South Windsor      | 9,300                   | 9,905     | 10,952    | 14,866    | 0                           | 0         | 0         | 0         |
| CWC-Collinsville           | Avon               | 31,160                  | 56,006    | 104,796   | 232,470   | 9,473                       | 17,192    | 32,008    | 80,329    |
|                            | Burlington         | 10,332                  | 10,496    | 10,742    | 12,956    | 3,092                       | 5,062     | 5,201     | 5,802     |
|                            | Canton             | 163,508                 | 196,062   | 248,296   | 422,300   | 106,138                     | 139,385   | 183,838   | 265,216   |
|                            | Harwington         | 0                       | 0         | 0         | 45,750    | 0                           | 0         | 0         | 6,004     |
|                            | Total              | 205,000                 | 262,564   | 363,834   | 713,476   | 118,704                     | 161,639   | 221,047   | 357,350   |
| CWC-Northern Div./Somers   | Somers             | 61,500                  | 90,700    | 120,500   | 225,400   | 29,340                      | 38,174    | 48,299    | 85,253    |
| CWC-Western & Rockville    | East Granby        | 6,960                   | 10,960    | 15,600    | 24,400    | 75,552                      | 132,537   | 173,237   | 236,489   |
|                            | East Windsor       | 249,680                 | 292,480   | 356,240   | 484,000   | 236,226                     | 321,979   | 408,764   | 556,201   |
|                            | Ellington          | 82,720                  | 109,120   | 281,040   | 715,200   | 68,175                      | 79,158    | 148,410   | 310,163   |
|                            | Enfield            | 1,661,920               | 1,934,400 | 2,289,120 | 3,432,800 | 934,123                     | 1,172,591 | 1,328,467 | 1,896,438 |
|                            | South Windsor      | 573,120                 | 629,280   | 773,840   | 958,800   | 350,049                     | 405,676   | 614,548   | 811,207   |
|                            | Suffield           | 353,120                 | 387,840   | 433,840   | 475,200   | 206,735                     | 265,181   | 310,503   | 391,511   |

TABLE 3.2  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
CONSUMPTION PROJECTIONS BY WATER UTILITY (1)

| UTILITY                      | COMMUNITIES SERVED | RESIDENTIAL CONSUMPTION |           |           |           | NON-RESIDENTIAL CONSUMPTION |           |           |           |
|------------------------------|--------------------|-------------------------|-----------|-----------|-----------|-----------------------------|-----------|-----------|-----------|
|                              |                    | gpd                     |           |           |           | gpd                         |           |           |           |
|                              |                    | 1986                    | 1992      | 2000      | 2030      | 1986                        | 1992      | 2000      | 2030      |
|                              | Vernon             | 1,081,920               | 1,150,560 | 1,405,280 | 1,702,080 | 784,403                     | 843,833   | 919,704   | 1,195,009 |
|                              | Windsor Locks      | 824,560                 | 884,800   | 887,040   | 921,600   | 919,222                     | 1,246,883 | 1,319,840 | 1,718,403 |
|                              | Total              | 4,834,000               | 5,399,440 | 6,442,000 | 8,714,080 | 3,574,485                   | 4,467,836 | 5,223,473 | 7,115,421 |
| Chelsea Common Assoc. Inc.   | East Granby        | 9,900                   | 10,637    | 11,606    | 15,926    | 0                           | 0         | 0         | 0         |
| Chestnut Hill Mts Water Assn | Glastonbury        | 1,575                   | 1,719     | 1,972     | 2,918     | 0                           | 0         | 0         | 0         |
| Chippanydale Assoc.          | Bristol            | 2,625                   | 2,725     | 2,858     | 3,454     | 0                           | 0         | 0         | 0         |
| Ciccio Court                 | Plainville         | 4,200                   | 4,389     | 4,527     | 5,498     | 0                           | 0         | 0         | 0         |
| Connecticut Correct Inst     | CCI                | 324,700                 | 420,000   | 420,000   | 420,000   | 0                           | 0         | 0         | 0         |
| Cope Manor                   | Plainville         | 4,575                   | 4,781     | 4,931     | 5,989     | 0                           | 0         | 0         | 0         |
| Country Gardens Apts.        | Somers             | 5,550                   | 5,793     | 6,018     | 7,302     | 0                           | 0         | 0         | 0         |
| East Granby Village Condos   | East Granby        | 22,575                  | 24,255    | 26,465    | 36,317    | 0                           | 0         | 0         | 0         |
| East Windsor Housing Auth    | East Windsor       | 5,400                   | 5,661     | 5,858     | 7,293     | 0                           | 0         | 0         | 0         |
| Ellington Acres Water Co     | East Windsor       | 0                       | 0         | 0         | 99,000    | 0                           | 0         | 0         | 0         |
|                              | Ellington          | 162,000                 | 193,400   | 233,850   | 536,000   | 3,000                       | 10,000    | 50,000    | 100,000   |
|                              | Somers             | 0                       | 35,600    | 72,150    | 180,000   | 0                           | 0         | 0         | 0         |
|                              | Total              | 162,000                 | 229,000   | 306,000   | 815,000   | 3,000                       | 10,000    | 50,000    | 100,000   |
| Ellsworth Estates            | East Windsor       | 22,500                  | 23,589    | 24,407    | 30,385    | 0                           | 0         | 0         | 0         |
| Ethel Walker School          | Simsbury           | 19,950                  | 21,457    | 24,386    | 34,212    | 0                           | 0         | 0         | 0         |
| Farmington Line West Condos  | Burlington         | 3,975                   | 4,221     | 4,518     | 5,979     | 0                           | 0         | 0         | 0         |
| Farmington Woods Water Co    | Avon               | 92,250                  | 100,924   | 110,571   | 161,229   | 0                           | 0         | 0         | 0         |
|                              | Farmington         | 35,250                  | 36,512    | 38,743    | 46,277    | 0                           | 0         | 0         | 0         |
|                              | Total              | 127,500                 | 137,437   | 149,314   | 207,506   | 0                           | 0         | 0         | 0         |

TABLE 3.2  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
CONSUMPTION PROJECTIONS BY WATER UTILITY (1)

| UTILITY                                           | COMMUNITIES SERVED | RESIDENTIAL CONSUMPTION<br>gpd |           |           |           | NON-RESIDENTIAL CONSUMPTION<br>gpd |           |           |           |
|---------------------------------------------------|--------------------|--------------------------------|-----------|-----------|-----------|------------------------------------|-----------|-----------|-----------|
|                                                   |                    | 1986                           | 1992      | 2000      | 2030      | 1986                               | 1992      | 2000      | 2030      |
| Grant Hill Associates, Inc                        | Bloomfield         | 6,900                          | 7,324     | 7,000     | 7,000     | 0                                  | 0         | 0         | 0         |
| Hazardville Water Company                         | East Windsor       | 0                              | 0         | 0         | 6,200     | 0                                  | 0         | 0         | 500       |
|                                                   | Enfield            | 1,240,000                      | 1,616,375 | 1,799,900 | 2,377,820 | 380,000                            | 450,000   | 480,000   | 660,000   |
|                                                   | Somers             | 0                              | 123,625   | 150,100   | 245,980   | 0                                  | 10,600    | 12,200    | 20,400    |
|                                                   | Total              | 1,240,000                      | 1,740,000 | 1,950,000 | 2,630,000 | 380,000                            | 460,600   | 492,200   | 680,900   |
| High Manor Mobile Home Park                       | Vernon             | 17,625                         | 18,751    | 20,746    | 27,528    | 0                                  | 0         | 0         | 0         |
| Higley Village                                    | East Granby        | 7,350                          | 7,897     | 8,617     | 11,824    | 0                                  | 0         | 0         | 0         |
| Hillsdale Water Co-op                             | South Windsor      | 1,725                          | 1,837     | 2,031     | 2,757     | 0                                  | 0         | 0         | 0         |
| Hilltop, Inc.                                     | Farmington         | 6,600                          | 6,836     | 7,254     | 8,665     | 0                                  | 0         | 0         | 0         |
| Jensens Forest Hills Mobile<br>Juniper Club, Inc. | Southington        | 28,200                         | 29,849    | 32,144    | 41,415    | 0                                  | 0         | 0         | 0         |
|                                                   | Bloomfield         | 5,175                          | 5,493     | 6,088     | 8,206     | 0                                  | 0         | 0         | 0         |
| Kenmore Road Assoc.                               | Bloomfield         | 8,250                          | 8,757     | 9,706     | 13,081    | 0                                  | 0         | 0         | 0         |
| Kimberly Lane Water Assoc.                        | Glastonbury        | 1,875                          | 2,046     | 2,347     | 3,474     | 0                                  | 0         | 0         | 0         |
| Lakeview of Farmington                            | Farmington         | 37,500                         | 38,843    | 41,216    | 49,231    | 0                                  | 0         | 0         | 0         |
| Latimer Farms Water Assoc.                        | Simsbury           | 2,100                          | 2,259     | 2,567     | 3,601     | 0                                  | 0         | 0         | 0         |
| Liebman Apartments                                | Ellington          | 3,450                          | 3,716     | 4,033     | 5,622     | 0                                  | 0         | 0         | 0         |
| Little Brook Road Supply                          | New Hartford       | 3,750                          | 3,942     | 4,114     | 5,139     | 0                                  | 0         | 0         | 0         |
| Llynwood, Inc.                                    | Vernon             | 2,400                          | 2,553     | 2,825     | 3,748     | 0                                  | 0         | 0         | 0         |
| Manchester Water Dept (3)                         | Glastonbury        | 58,500                         | 67,340    | 76,050    | 112,500   | 0                                  | 0         | 0         | 0         |
|                                                   | Manchester         | 3,722,750                      | 4,304,300 | 4,792,000 | 6,040,000 | 1,000,000                          | 1,400,000 | 1,400,000 | 1,800,000 |
|                                                   | South Windsor      | 8,270                          | 9,480     | 10,800    | 16,000    | 0                                  | 0         | 0         | 0         |
|                                                   | Vernon             | 16,380                         | 18,880    | 21,150    | 31,500    | 0                                  | 0         | 0         | 0         |
|                                                   | Total              | 3,805,900                      | 4,400,000 | 4,900,000 | 6,200,000 | 1,000,000                          | 1,400,000 | 1,400,000 | 1,800,000 |

TABLE 3.2  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
CONSUMPTION PROJECTIONS BY WATER UTILITY (1)

| UTILITY                      | COMMUNITIES SERVED | RESIDENTIAL CONSUMPTION |            |            |            | NON-RESIDENTIAL CONSUMPTION |            |            |            |
|------------------------------|--------------------|-------------------------|------------|------------|------------|-----------------------------|------------|------------|------------|
|                              |                    | gpd                     |            |            |            | gpd                         |            |            |            |
|                              |                    | 1986                    | 1992       | 2000       | 2030       | 1986                        | 1992       | 2000       | 2030       |
| Maple Ridge Farms Water Assn | Farmington         | 6,975                   | 7,225      | 7,666      | 9,157      | 0                           | 0          | 0          | 0          |
| Meadowbrook Apartments       | Ellington          | 4,350                   | 4,685      | 5,085      | 7,089      | 0                           | 0          | 0          | 0          |
| Meriden Water Dept.          | Berlin             | 300                     | 312        | 319        | 379        | 0                           | 0          | 0          | 0          |
|                              | Southington        | 9,750                   | 10,320     | 11,114     | 14,319     | 0                           | 0          | 0          | 0          |
|                              | Total              | 10,050                  | 10,633     | 11,433     | 14,698     | 0                           | 0          | 0          | 0          |
| Metacomet Village            | East Granby        | 4,650                   | 4,996      | 5,451      | 7,480      | 0                           | 0          | 0          | 0          |
| Metropolitan District Comm   | Bloomfield         | 1,510,500               | 1,561,000  | 1,736,000  | 2,339,000  | 1,823,000                   | 2,023,000  | 2,323,000  | 3,523,000  |
|                              | East Granby        | 0                       | 8,250      | 112,500    | 157,500    | 0                           | 0          | 0          | 0          |
|                              | East Hartford      | 3,913,500               | 4,067,000  | 4,336,000  | 5,328,000  | 8,861,000                   | 9,861,000  | 11,661,000 | 13,661,000 |
|                              | Farmington         | 90,000                  | 93,000     | 99,000     | 118,000    | 912,000                     | 1,012,000  | 1,212,000  | 1,812,000  |
|                              | Glastonbury        | 1,245,000               | 1,354,000  | 1,559,000  | 2,307,000  | 532,000                     | 632,000    | 732,000    | 1,132,000  |
|                              | Hartford           | 10,131,000              | 10,458,000 | 11,115,000 | 13,070,000 | 9,113,000                   | 10,113,000 | 12,013,000 | 14,113,000 |
|                              | Manchester         | 75,000                  | 77,000     | 82,000     | 97,000     | 0                           | 0          | 0          | 0          |
|                              | Newington          | 2,201,250               | 2,313,000  | 2,482,000  | 3,172,000  | 1,443,000                   | 1,643,000  | 1,943,000  | 2,943,000  |
|                              | Rocky Hill         | 1,166,250               | 1,319,000  | 1,552,000  | 2,547,000  | 812,000                     | 1,012,000  | 1,212,000  | 1,812,000  |
|                              | South Windsor      | 337,500                 | 358,000    | 397,000    | 539,000    | 532,000                     | 632,000    | 732,000    | 1,132,000  |
|                              | West Hartford      | 4,588,500               | 4,664,000  | 4,712,000  | 5,044,000  | 2,328,000                   | 2,528,000  | 3,128,000  | 4,628,000  |
|                              | Wethersfield       | 2,055,750               | 2,026,000  | 2,120,000  | 2,451,000  | 812,000                     | 1,012,000  | 1,212,000  | 1,812,000  |
|                              | Windsor            | 2,028,000               | 2,115,000  | 2,331,000  | 3,139,000  | 2,328,000                   | 2,528,000  | 3,128,000  | 4,628,000  |
|                              | Windsor Locks      | 0                       | 0          | 0          | 0          | 286,000                     | 286,000    | 286,000    | 286,000    |
|                              | Total              | 29,342,250              | 30,413,250 | 32,633,500 | 40,308,500 | 29,782,000                  | 33,282,000 | 39,582,000 | 51,482,000 |
| Neipsic Woods Section 3      | Glastonbury        | 2,100                   | 2,292      | 2,629      | 3,891      | 0                           | 0          | 0          | 0          |
| Neipsic Woods Water Assoc.   | Glastonbury        | 4,875                   | 5,320      | 6,103      | 9,033      | 0                           | 0          | 0          | 0          |
| New Britain Water Dept.      | Berlin             | 18,799                  | 17,425     | 17,425     | 17,425     | 11,829                      | 15,088     | 16,482     | 19,106     |
|                              | Farmington         | 37,230                  | 47,600     | 64,600     | 127,500    | 23,426                      | 41,216     | 61,104     | 139,800    |

TABLE 3.2  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
CONSUMPTION PROJECTIONS BY WATER UTILITY (1)

| UTILITY                      | COMMUNITIES SERVED | RESIDENTIAL CONSUMPTION |           |           |           | NON-RESIDENTIAL CONSUMPTION |           |           |           |
|------------------------------|--------------------|-------------------------|-----------|-----------|-----------|-----------------------------|-----------|-----------|-----------|
|                              |                    | gpd                     |           |           |           | gpd                         |           |           |           |
|                              |                    | 1986                    | 1992      | 2000      | 2030      | 1986                        | 1992      | 2000      | 2030      |
|                              | New Britain        | 6,807,808               | 6,199,560 | 6,018,850 | 5,669,500 | 4,283,648                   | 5,368,090 | 5,693,124 | 6,216,440 |
|                              | Newington          | 61,714                  | 77,350    | 92,650    | 161,500   | 38,832                      | 66,976    | 87,636    | 177,080   |
|                              | Plainville         | 8,528                   | 7,905     | 7,905     | 7,915     | 5,366                       | 6,845     | 7,477     | 8,668     |
|                              | Total              | 6,934,079               | 6,349,840 | 6,201,430 | 5,983,840 | 4,363,101                   | 5,498,215 | 5,865,823 | 6,561,094 |
| New Hartford Water Dept.     | New Hartford       | 62,900                  | 99,600    | 101,200   | 112,950   | 49,500                      | 51,600    | 54,400    | 64,900    |
| Oakwood, Inc.                | Glastonbury        | 10,125                  | 11,049    | 12,676    | 18,761    | 0                           | 0         | 0         | 0         |
| Old Newgate Ridge Water Co.  | East Granby        | 9,075                   | 9,750     | 10,639    | 14,599    | 0                           | 0         | 0         | 0         |
| Orchard Hill Assoc.          | Bloomfield         | 1,875                   | 1,990     | 2,206     | 2,973     | 0                           | 0         | 0         | 0         |
| Penwood Assoc., Inc.         | Bloomfield         | 4,125                   | 4,379     | 4,853     | 6,541     | 0                           | 0         | 0         | 0         |
| Pine Hill, Inc.              | Glastonbury        | 1,350                   | 1,473     | 1,690     | 2,501     | 0                           | 0         | 0         | 0         |
| Plainville Water Company     | Plainville         | 1,032,440               | 1,064,984 | 1,201,163 | 1,609,092 | 1,549,863                   | 1,630,137 | 1,958,904 | 2,739,726 |
|                              | Southington        | 30,300                  | 30,906    | 31,714    | 34,744    | 0                           | 0         | 0         | 0         |
|                              | Total              | 1,062,740               | 1,095,890 | 1,232,877 | 1,643,836 | 1,549,863                   | 1,630,137 | 1,958,904 | 2,739,726 |
| Redwood Farms L&M Water Co.  | Manchester         | 19,500                  | 20,149    | 21,239    | 25,138    | 0                           | 0         | 0         | 0         |
| Reid Treatment Center        | Avon               | 2,250                   | 2,462     | 2,697     | 3,932     | 0                           | 0         | 0         | 0         |
| Rock Tree Apartments         | Barkhamsted        | 4,350                   | 4,687     | 5,149     | 7,112     | 0                           | 0         | 0         | 0         |
| Rolling Hills Water Assoc    | Glastonbury        | 8,400                   | 9,167     | 10,517    | 15,565    | 0                           | 0         | 0         | 0         |
| Salmon Brook Dist Water Dept | Granby             | 75,000                  | 80,840    | 90,563    | 126,052   | 0                           | 0         | 0         | 0         |
| School Hill Assoc., Inc.     | East Windsor       | 6,450                   | 6,762     | 6,997     | 8,710     | 0                           | 0         | 0         | 0         |
| Shaker Heights, Inc.         | Enfield            | 10,125                  | 10,755    | 11,827    | 15,822    | 0                           | 0         | 0         | 0         |
| Sharon Heights Water Assoc.  | Bloomfield         | 5,625                   | 5,971     | 6,618     | 8,919     | 0                           | 0         | 0         | 0         |
| Snipsic Village Housing Auth | Ellington          | 7,275                   | 7,835     | 8,505     | 11,856    | 0                           | 0         | 0         | 0         |
| Somers Elderly Housing Auth  | Somers             | 5,175                   | 5,402     | 5,612     | 6,808     | 0                           | 0         | 0         | 0         |

TABLE 3.2  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
CONSUMPTION PROJECTIONS BY WATER UTILITY (1)

| UTILITY                      | COMMUNITIES SERVED | RESIDENTIAL CONSUMPTION |            |            |            | NON-RESIDENTIAL CONSUMPTION |            |            |            |
|------------------------------|--------------------|-------------------------|------------|------------|------------|-----------------------------|------------|------------|------------|
|                              |                    | gpd                     |            |            |            | gpd                         |            |            |            |
|                              |                    | 1986                    | 1992       | 2000       | 2030       | 1986                        | 1992       | 2000       | 2030       |
| Somersmill Water Assoc.      | Somers             | 18,750                  | 19,573     | 20,332     | 24,667     | 0                           | 0          | 0          | 0          |
| Southington Water Works      | Southington        | 2,690,000               | 2,860,000  | 3,120,000  | 3,940,000  | 1,190,000                   | 1,200,000  | 1,257,000  | 1,381,000  |
| Tariffville Fire Dist        | Simsbury           | 148,500                 | 159,720    | 181,520    | 254,660    | 0                           | 0          | 0          | 0          |
| Taylor Trailer Park          | Southington        | 6,225                   | 6,589      | 7,096      | 9,142      | 0                           | 0          | 0          | 0          |
| Torrington Water Co.         | Harwinton          | 462                     | 497        | 547        | 760        | 0                           | 0          | 0          | 0          |
| Towpath Condominiums         | Avon               | 9,000                   | 9,846      | 10,787     | 15,730     | 0                           | 0          | 0          | 0          |
| Trailsend Company            | Canton             | 3,600                   | 3,818      | 4,054      | 5,288      | 0                           | 0          | 0          | 0          |
| Turkey Hill Apartments       | East Granby        | 18,750                  | 20,145     | 21,981     | 30,163     | 0                           | 0          | 0          | 0          |
| Unionville Water Company     | Avon               | (2)                     | (2)        | (2)        | (2)        | 0                           | 0          | 0          | 0          |
|                              | Burlington         | (2)                     | (2)        | (2)        | (2)        | 0                           | 0          | 0          | 0          |
|                              | Farmington         | (2)                     | (2)        | (2)        | (2)        | 575,000                     | 594,027    | 631,283    | 719,385    |
|                              | Total              | 818,000                 | 838,575    | 940,800    | 1,321,200  | 575,000                     | 594,027    | 631,283    | 719,385    |
| Vernon Village, Inc.         | Vernon             | 24,000                  | 25,533     | 28,250     | 37,485     | 0                           | 0          | 0          | 0          |
| Village Water Co of Simsbury | East Granby        | 5,250                   | 5,641      | 6,155      | 8,446      | 0                           | 0          | 0          | 0          |
|                              | Granby             | 48,525                  | 52,304     | 53,671     | 81,556     | 0                           | 0          | 0          | 0          |
|                              | Simsbury           | 1,037,400               | 1,115,779  | 1,268,073  | 1,779,018  | 400,000                     | 570,000    | 640,000    | 820,000    |
|                              | Total              | 1,091,175               | 1,173,724  | 1,327,899  | 1,869,019  | 400,000                     | 570,000    | 640,000    | 820,000    |
| Wallens Hill Apartments      | Barkhamsted        | 3,675                   | 3,960      | 4,350      | 6,008      | 0                           | 0          | 0          | 0          |
| West Hill Lake Water Assoc   | New Hartford       | 15,000                  | 15,768     | 16,457     | 20,556     | 0                           | 0          | 0          | 0          |
| West Service Corp.           | Suffield           | 30,000                  | 31,181     | 32,291     | 38,748     | 0                           | 0          | 0          | 0          |
| Windsorville Water Assoc.    | East Windsor       | 2,250                   | 2,359      | 2,441      | 3,039      | 0                           | 0          | 0          | 0          |
| Wintergreen                  | Harwinton          | 3,000                   | 3,230      | 3,554      | 4,933      | 0                           | 0          | 0          | 0          |
| Woodcrest Assoc., Inc.       | Burlington         | 4,725                   | 5,018      | 5,371      | 7,108      | 0                           | 0          | 0          | 0          |
|                              |                    | 58,267,719              | 62,414,174 | 68,025,234 | 86,647,156 | 45,488,965                  | 52,654,227 | 61,263,521 | 79,491,946 |

NOTES:

1. Consumption based on figures obtained from individual supply plans or by applying per capita values to population projections, depending on the utility.
2. The Unionville Water Company did not provide individual community consumption figures. The figures shown represent system totals.
3. The Manchester Water Company figures for residential consumption include commercial and public authority use. The non-residential figures include industrial and unaccounted for water. These figures were taken from the individual plan.

(This information was drawn from individual plans for the larger utilities. A 75 gpcd figure, escalated at 0.25 gpcd per year, was used for the smaller utilities.) Table 3.3 compares the projected consumption figures of Table 3.2 (sum of residential and nonresidential) with the safe yield of each utility (including purchased water) and lists surpluses or deficits projected for each time frame studied. Table 3.4 highlights data for the eight systems which are projected to experience a shortfall in the safe yield of current water sources at some point during the planning period.

As shown in Table 3.4, the MDC is projected to have the largest supply deficits throughout the planning period, increasing from around 1 mgd in 1992 to approximately 24 mgd in 2030. The Bristol Water Department is projected to have the second largest supply deficit, requiring an additional 3.9 mgd of supply by 2030. Although the MDC has the largest projected deficit amount, the supply deficits that require the largest percentage increase in system supply include the Ellington Acres Water Company and the Collinsville Division of the Connecticut Water Company, with respective increases of 254% and 110% required to overcome supply deficits by 2030. The Avon Water Company and the Plainville Water Company will require additional supplies by 2030 that represent approximately 53% and 34% of existing supplies, respectively. Even though the Western and Rockville Division of the Connecticut Water Company requires only a 15% increase in supplies, the 2030 deficit of 2.08 mgd is the third largest projected in the planning area.

### 3.3.2 Alternative Water Resources for Future Supply Needs

Potential surface and groundwater sources previously identified in the Upper Connecticut River Management Area are listed in Tables 3.5 and 3.6, respectively. The utilities in the Management Area have further examined these potential sources, and have developed specific source implementation scenarios in their individual plans in order to either meet demand projections, provide greater margins of safety in terms of supply, avoid potential (or existing) contamination problems, or more efficiently operate their systems. The recommendations of the individual plans, in terms of new source development, are summarized in Table 3.7.

TABLE 3.3  
 UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
 PROJECTED WATER SUPPLY SURPLUS OR DEFICIT

| UTILITY                        | TOTAL CONSUMPTION |      |       |       |
|--------------------------------|-------------------|------|-------|-------|
|                                | 1986              | 1992 | 2000  | 2030  |
| Avery Heights Water Assoc.     | 0.06              | 0.06 | 0.07  | 0.10  |
| Avon Old Farms School          | 0.03              | 0.04 | 0.04  | 0.06  |
| Avon Water Company             | 0.86              | 1.12 | 1.44  | 2.56  |
| Berlin                         | 1.79              | 1.89 | 2.15  | 2.83  |
| Briarwood College              | 0.03              | 0.04 | 0.04  | 0.05  |
| Bristol Water Dept.            | 5.28              | 7.10 | 8.00  | 11.71 |
| Burnham Acres Water Assoc.     | 0.01              | 0.01 | 0.01  | 0.01  |
| CWC-Collinsville               | 0.32              | 0.42 | 0.58  | 1.07  |
| CWC-Northern Div./Somers       | 0.09              | 0.13 | 0.17  | 0.31  |
| CWC-Western & Rockville        | 8.41              | 9.87 | 11.67 | 15.83 |
| Chelsea Common Assoc. Inc.     | 0.01              | 0.01 | 0.01  | 0.02  |
| Chestnut Hill Hts Water Assn   | 0.00              | 0.00 | 0.00  | 0.00  |
| Chippanydale Assoc.            | 0.00              | 0.00 | 0.00  | 0.00  |
| Ciccio Court                   | 0.00              | 0.00 | 0.00  | 0.01  |
| Connecticut Correct Inst       | 0.32              | 0.42 | 0.42  | 0.42  |
| Cope Manor                     | 0.00              | 0.00 | 0.00  | 0.01  |
| Country Gardens Apts.          | 0.01              | 0.01 | 0.01  | 0.01  |
| East Granby Village Condos     | 0.02              | 0.02 | 0.03  | 0.04  |
| East Windsor Housing Authority | 0.01              | 0.01 | 0.01  | 0.01  |
| Ellington Acres Water Co       | 0.17              | 0.24 | 0.36  | 0.92  |
| Ellsworth Estates              | 0.02              | 0.02 | 0.02  | 0.03  |
| Ethel Walker School            | 0.02              | 0.02 | 0.02  | 0.03  |
| Farmington Line West Condos    | 0.00              | 0.00 | 0.00  | 0.01  |
| Farmington Woods Water Co      | 0.13              | 0.14 | 0.15  | 0.21  |
| Grant Hill Associates, Inc     | 0.01              | 0.01 | 0.01  | 0.01  |
| Hazardville Water Company      | 1.62              | 2.20 | 2.44  | 3.31  |
| High Manor Mobile Home Park    | 0.02              | 0.02 | 0.02  | 0.03  |
| Higley Village                 | 0.01              | 0.01 | 0.01  | 0.01  |
| Hillsdale Water Co-op          | 0.00              | 0.00 | 0.00  | 0.00  |
| Hilltop, Inc.                  | 0.01              | 0.01 | 0.01  | 0.01  |

TABLE 3.3  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
PROJECTED WATER SUPPLY SURPLUS OR DEFICIT

| UTILITY                      | TOTAL CONSUMPTION<br>mgd |       |       |       |
|------------------------------|--------------------------|-------|-------|-------|
|                              | 1986                     | 1992  | 2000  | 2030  |
| Jensens Forest Hills Mobile  | 0.03                     | 0.03  | 0.03  | 0.04  |
| Juniper Club, Inc.           | 0.01                     | 0.01  | 0.01  | 0.01  |
| Kenmore Road Assoc.          | 0.01                     | 0.01  | 0.01  | 0.01  |
| Kimberly Lane Water Assn     | 0.00                     | 0.00  | 0.00  | 0.00  |
| Lakeview of Farmington       | 0.04                     | 0.04  | 0.04  | 0.05  |
| Latimer Farms Water Assn     | 0.00                     | 0.00  | 0.00  | 0.00  |
| Liebman Apartments           | 0.00                     | 0.00  | 0.00  | 0.01  |
| Little Brook Road Supply     | 0.00                     | 0.00  | 0.00  | 0.01  |
| Llynwood, Inc.               | 0.00                     | 0.00  | 0.00  | 0.00  |
| Manchester Water Department  | 4.81                     | 5.80  | 6.30  | 8.00  |
| Maple Ridge Farms Water Assn | 0.01                     | 0.01  | 0.01  | 0.01  |
| Meadowbrook Apartments       | 0.00                     | 0.00  | 0.01  | 0.01  |
| Meriden Water Dept.          | 0.01                     | 0.01  | 0.01  | 0.01  |
| Metacomet Village            | 0.00                     | 0.00  | 0.01  | 0.01  |
| Metropolitan District Comm   | 59.12                    | 63.70 | 72.22 | 91.79 |
| Neipsic Woods Section 3      | 0.00                     | 0.00  | 0.00  | 0.00  |
| Neipsic Woods Water Assoc.   | 0.00                     | 0.01  | 0.01  | 0.01  |
| New Britain Water Dept.      | 11.30                    | 11.85 | 12.07 | 12.54 |
| New Hartford Water Dept. (5) | 0.11                     | 0.15  | 0.16  | 0.18  |
| Oakwood, Inc.                | 0.01                     | 0.01  | 0.01  | 0.02  |
| Old Newgate Ridge Water Co.  | 0.01                     | 0.01  | 0.01  | 0.01  |
| Orchard Hill Assoc.          | 0.00                     | 0.00  | 0.00  | 0.00  |
| Penwood Assoc., Inc.         | 0.00                     | 0.00  | 0.00  | 0.01  |
| Pine Hill, Inc.              | 0.00                     | 0.00  | 0.00  | 0.00  |
| Plainville Water Company     | 2.61                     | 2.73  | 3.19  | 4.38  |

\* As noted in the Integral Report, the 2030 deficit was eventually reduced to [REDACTED] and calculation by MDC.

TABLE 3.3  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
PROJECTED WATER SUPPLY SURPLUS OR DEFICIT

| UTILITY                      | TOTAL CONSUMPTION<br>mgd |        |        |      |
|------------------------------|--------------------------|--------|--------|------|
|                              | 1986                     | 1992   | 2000   | 2030 |
| Redwood Farms L&M Water Co.  | 0.02                     | 0.02   | 0.02   | 0.   |
| Reid Treatment Center        | 0.00                     | 0.00   | 0.00   | 0.   |
| Rock Tree Apartments         | 0.00                     | 0.00   | 0.01   | 0.   |
| Rolling Hills Water Assoc    | 0.01                     | 0.01   | 0.01   | 0.   |
| Salmon Brook Dist Water Dept | 0.08                     | 0.08   | 0.09   | 0.   |
| School Hill Assoc., Inc.     | 0.01                     | 0.01   | 0.01   | 0.   |
| Shaker Heights, Inc.         | 0.01                     | 0.01   | 0.01   | 0.   |
| Sharon Heights Water Assoc.  | 0.01                     | 0.01   | 0.01   | 0.   |
| Snipsic Village Housing Auth | 0.01                     | 0.01   | 0.01   | 0.   |
| Somers Elderly Housing Auth  | 0.01                     | 0.01   | 0.01   | 0.   |
| Somersmill Water Assoc.      | 0.02                     | 0.02   | 0.02   | 0.   |
| Southington Water Works      | 3.88                     | 4.06   | 4.37   | 5.   |
| Tariffville Fire District    | 0.15                     | 0.16   | 0.18   | 0    |
| Taylor Trailer Park          | 0.01                     | 0.01   | 0.01   | 0    |
| Torrington Water Co.         | 0.00                     | 0.00   | 0.00   | 0    |
| Towpath Condominiums         | 0.01                     | 0.01   | 0.01   | 0    |
| Trailsend Company            | 0.00                     | 0.00   | 0.00   | 0    |
| Turkey Hill Apartments       | 0.02                     | 0.02   | 0.02   | 0    |
| Unionville Water Company     | 1.39                     | 1.43   | 1.57   | 2    |
| Vernon Village, Inc.         | 0.02                     | 0.03   | 0.03   | 0    |
| Village Water Co of Simsbury | 1.49                     | 1.74   | 1.97   | 2    |
| Wallens Hill Apartments      | 0.00                     | 0.00   | 0.00   | 0    |
| West Hill Lake Water Assoc   | 0.02                     | 0.02   | 0.02   | 0    |
| West Service Corp.           | 0.03                     | 0.03   | 0.03   | 0    |
| Windsorville Water Assoc.    | 0.00                     | 0.00   | 0.00   | 0    |
| Wintergreen                  | 0.00                     | 0.00   | 0.00   | 0    |
| Woodcrest Assoc., Inc.       | 0.00                     | 0.01   | 0.01   | 0    |
|                              | 104.57                   | 115.91 | 130.22 | 167  |

**TABLE 3.3  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
PROJECTED WATER SUPPLY SURPLUS OR DEFICIT**

| UTILITY | TOTAL CONSUMPTION<br>mgd |      |      |      | ESTIMATED(1)<br>SAFE YIELD | PROJECTED SURPLUS/(DEFICIT)(2)<br>mgd |      |      |      |
|---------|--------------------------|------|------|------|----------------------------|---------------------------------------|------|------|------|
|         | 1986                     | 1992 | 2000 | 2030 | mgd                        | 1986                                  | 1992 | 2000 | 2030 |

**NOTES:**

1. The estimated safe yield represents the total available surface and groundwater supplies presented in Table 3.2.3, adding water purchased and subtracting water sold, presented in Table 3.2.4.
2. The projected surplus or deficit was determined by subtracting the estimated safe yield from the total consumption for each year.
3. Meriden Water Department has 38 customers within the study area. The utility's remaining service area is outside of the study area.
4. Torrington Water Company serves 1 industrial customer, 1 public authority and 2 houses. The utility's remaining service area is outside of the study area.
5. Consumption does not include unaccounted for water; safe yield can be increased as necessary through greater use of MDC raw water connection from Barkhamsted Reservoir.

TABLE 3.4

UPPER CONNECTICUT RIVER WATER  
SUPPLY MANAGEMENT AREA

WATER SYSTEMS WITH FUTURE SUPPLY DEFICITS

| <u>Utility</u>                   | Projected Deficit, MGD |             |
|----------------------------------|------------------------|-------------|
|                                  | <u>2000</u>            | <u>2030</u> |
| Avon Water Company               | -                      | 0.89        |
| Bristol Water Department         | 0.15                   | 3.86        |
| CWC - Collinsville Division      | 0.07                   | 0.56        |
| CWC - Western & Rockville        | -                      | 2.08        |
| Ellington Acres Water Company    | 0.10                   | 0.66        |
| Metropolitan District Commission | 5.50                   | 24.00       |
| Plainville Water Company         | -                      | 1.12        |
| Unionville Water Company         | -                      | 0.40        |
|                                  | 5.82                   | 33.57       |

TABLE 3.5  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POTENTIAL FUTURE SURFACE WATER SUPPLY SOURCES

| <u>Identifying Utility</u>                                 | <u>Supply Source</u>                            | <u>Potential Yield, MGD</u> | <u>Arrangements Required to Develop Potential Source(3)</u>                                                                                                                                                                                                                           | <u>Water Quality (4) Classification</u>                                                       |
|------------------------------------------------------------|-------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Bristol Water Dept.                                        | (1) [REDACTED]                                  | 1.7                         | - Environmental Assessment and permitting underway.                                                                                                                                                                                                                                   | Proposed reservoir w/goal of Class AA classification. Depends upon point of withdrawal        |
|                                                            |                                                 | 0.8                         | - Land acquisition almost complete.                                                                                                                                                                                                                                                   |                                                                                               |
|                                                            |                                                 | 0.9                         | - Land acquisition, permitting, water rights required.                                                                                                                                                                                                                                |                                                                                               |
| Bristol Water Dept.                                        | Poland River Diversion                          | 0.6                         | - Feasibility study completed.<br>Land acquisition, permitting required.<br><br>- Impact must be assessed on Terryville wells; may require seasonal pumping.                                                                                                                          | N.A.                                                                                          |
| Connecticut Water Co.<br>Western and Rockville<br>Division | (1) Connecticut River,<br>initial increment WTP | 5                           | - Use as water source currently prohibited. High coliform counts: non-point sources in CT and MASS; many WWTP discharges. WTP required.                                                                                                                                               | Classification depends upon point of withdrawal, although highest classification is Class B.  |
| Manchester Water<br>Department                             | (1) [REDACTED]                                  | 0.9                         | - Dam seepage losses above average.<br>- Additional yield developed through increase in storage.                                                                                                                                                                                      | Class AA                                                                                      |
| Metropolitan District<br>Commission                        | ( [REDACTED]                                    | 20                          | - Must ensure compatibility with other river uses. Historic conflicts with other uses, potential designation as "wild and scenic river," and 4 downstream segments in Basin that do not meet Class B water quality goals. Yield based on maximum withdrawal, allowing for other uses. | West Branch Reservoir<br>Class AA<br>Colebrook Reservoir<br>Class A, with goal<br>of Class AA |

TABLE 3.5 - (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POTENTIAL FUTURE SURFACE WATER SUPPLY SOURCES

| <u>Identifying Utility</u>       | <u>Supply Source</u>                                 | <u>Potential Yield, MGD</u>                 | <u>Arrangements Required to Develop Potential Source(3)</u>                                                             | <u>Water Quality Classification</u>                  |
|----------------------------------|------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Metropolitan District Commission | [REDACTED]                                           | 10                                          | - Lower minimum operational levels in existing reservoirs.<br>- Non-summer use of Lake McDonough in drought conditions. | East Branch<br>Class AA<br>Lake McDonough<br>Class A |
| New Britain Water Department     | Reservoir Project<br>o Burlington Brook<br>Diversion | 4.0 <sup>(1)</sup><br>2.5 <sup>(1)(2)</sup> | - Road relocation, permits, agreement w/MDC, diversion permit and report required.                                      | Class A                                              |
| New Hartford Water Department    | Barkhamsted Aqueduct WTP                             | N.A.                                        | [REDACTED]<br>for use as regular supply.                                                                                | Class AA                                             |
| Plainville Water Company         | (1) Crescent Lake<br>(Plainville Reservoir)          | 0.4                                         | - Yield based on new filter WTP. Poor water quality, even with treatment. Source not used for many years.               | Class AA                                             |
|                                  | (1) Tullers Reservoir AKA<br>Simsbury Reservoir      | 0.5                                         | - Needs treatment, not intended for future use by utility                                                               | Class AA                                             |
|                                  | (1) Thrasher Brook                                   | 2.9                                         | - N.A.                                                                                                                  | Classification depends upon point of withdrawal.     |
|                                  | (1) East Branch Salmon Brook                         | 6.0                                         | - Land requirements over 2000 acres. Two town roads, one state road to be relocated.                                    | Classification depends upon point of withdrawal.     |
|                                  | (1) West Branch Salmon Brook                         | 10.0                                        | - N.A.                                                                                                                  |                                                      |

TABLE 3.5 - (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POTENTIAL FUTURE SURFACE WATER SUPPLY SOURCES

| <u>Identifying Utility</u>                                 | <u>Supply Source</u>                            | <u>Potential Yield MGD</u> | <u>Arrangements Required to Develop Potential Source(3)</u>                                                                                                           | <u>Water Quality Classification</u>              |
|------------------------------------------------------------|-------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Connecticut Water Co.<br>Western and Rockville<br>Division | Scantic River Reservoir                         | N.A.                       | - Large amount of existing development adjacent to river in the vicinity of impoundment; land requirements over 2,000 acres.                                          | Classification depends upon point of withdrawal. |
| Connecticut Water Co.<br>Western and Rockville<br>Division | Broad Brook Diversion to<br>Shenipsit Reservoir | 7                          | - 7 mgd based on 3 months of highest stream flow per year. Dam overflow may need to be raised.                                                                        | Classification depends upon point of withdrawal. |
| Connecticut Water Co.<br>Western and Rockville<br>Division | Scantic River Diversion<br>to Lake Shenipsit    | 5<br><br>12-20             | - Pumping from Scantic River during 8 months of highest stream flow.<br><br>- Construction of a new dam together with diversion. Yield depends on overflow elevation. | Classification depends upon point of withdrawal  |

NOTES:

1. Identified in the Final Water Supply Assessment.
2. New Britain Water Department projects the safe yield of the project to be 2.5 MGD in individual plan.
3. Identified in individual plans or taken from Assessment, whenever available; also note that diversion permits will be required for withdrawals in excess of 50,000 gpd.
4. Water quality is also dependent on present and future development in privately-held watershed areas - a point taken up in greater detail in Section 3.4.

**TABLE 3.6**  
**UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA**  
**POTENTIAL FUTURE GROUNDWATER SUPPLY SOURCES**

| Identifying Utility                     | Supply Source       | Potential Yield<br>MGD | Qualification to Use of Potential Source <sup>(1)</sup>                                                                                                                                                   | Water Quality<br>Classification <sup>(2)</sup> |
|-----------------------------------------|---------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Avon Water Company                      | [REDACTED]          |                        | Future development may affect water quality<br>Located in R-30 residential zone. Aquifer location No. 43-14                                                                                               | GA                                             |
| Avon Water Company                      | [REDACTED]          |                        | - Future development may affect water quality<br>Located in R-40 residential zone<br><br>- Possible legal constraints since wells are outside of<br>Roaring Brook watershed.                              | GA                                             |
| Avon Water Company                      | [REDACTED]          |                        | Future development may affect water quality<br>Located in R-40 residential zone                                                                                                                           | GA                                             |
| Avon Water Company                      | [REDACTED]          |                        | Future development may affect water quality                                                                                                                                                               | GA                                             |
| Town of Berlin                          | [REDACTED]          |                        | Engineering and construction of production well and<br>2000 L.F. of 12 inch DI main                                                                                                                       | GA <sup>(3)</sup>                              |
| Town of Berlin                          | Woodlawn Road Wells | 0.8                    | Engineering and construction of production well                                                                                                                                                           | GA <sup>(3)</sup>                              |
| Bristol Water Dept.                     | Hoppers Wellfield   | 1.0                    | Engineering and construction of production well                                                                                                                                                           | GA                                             |
| CWC - Somers Division                   | Gulf Road Tank Site | 0.04                   | Non-point source pollution (septic systems, soil erosion<br>and sedimentation). Aquifer location no. 43-6.                                                                                                | GA                                             |
| CWC - Collinsville Division             | Well Site, Area III | 0.29                   | Rock well. Land acquisition, testing and permitting<br>required. Non-point source pollution (septic systems,<br>soil erosion and sedimentation).                                                          | GA                                             |
| CWC - Western and<br>Rockville Division | [REDACTED]          |                        | Located adjacent to duck sanctuary. Non-point source<br>pollution (septic systems, soil erosion and sedimentation)<br>Lack of sanitary protection; maintaining viability of<br>sanctuary may limit yield. | GA                                             |

TABLE 3.6 - (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POTENTIAL FUTURE GROUNDWATER SUPPLY SOURCES

| <u>Identifying Utility</u>           | <u>Supply Source</u>                                                          | <u>Potential Yield MGD</u> | <u>Qualification to Use of Potential Source</u> <sup>(1)</sup>                                                                                                                                                                                                                          | <u>Water Quality Classification</u> <sup>(2)</sup> |
|--------------------------------------|-------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| CWC - Western and Rockville Division | [REDACTED]                                                                    | [REDACTED]                 | Hydrogeologic investigation required for use of Scantic River for recharge. Proximity of Kement Landfill to the river will require extensive monitoring. Pollution from erosion, runoff, sewage sludge disposal. Aquifer location No. 42-7.                                             | GA                                                 |
| CWC - Western and Rockville Division | Windsor Locks Well Field                                                      | 0.6                        | Inactive Well Field. EDB contamination requires granular activated carbon treatment.                                                                                                                                                                                                    | GB/GAA                                             |
| CWC - Western and Rockville Division | Farnham Well Site                                                             | -                          | Inactive well. High levels of sodium, chloride, nitrate, solids, iron, manganese. Little sanitary protection. Reverse osmosis treatment recommended.                                                                                                                                    | GB/GAA                                             |
| Ellington Acres Water Co.            | New Well                                                                      | N.A.                       | One well in stratified drift aquifer. Location survey, sub-surface exploration, testing, land acquisition and permits required.                                                                                                                                                         | GA or GAA <sup>(3)</sup>                           |
| Hazardville Water Company            | [REDACTED]                                                                    | [REDACTED]                 | New wells located in active wellfield. Incremental yield estimated, no studies or evaluations performed                                                                                                                                                                                 | GAA                                                |
| Hazardville Water Company            | Town of Enfield Property                                                      | N.A.                       | Being considered for one or two wells                                                                                                                                                                                                                                                   | GA                                                 |
| Town of Manchester                   | Reactive Wells 1A and 2A                                                      | 0.6                        | Would be used to augme [REDACTED]                                                                                                                                                                                                                                                       | GB/GAA or GAA                                      |
| Town of Manchester                   | Reactive Well 11                                                              | 0.5                        | Well rehabilitation                                                                                                                                                                                                                                                                     | GB/GAA                                             |
| MDC                                  | New Well Fields in the S. Glastonbury, Simsbury/ Granby, or Simsbury aquifers | 4 - 8                      | Depends on local land use, groundwater protection regulations, well field and system logistics, Safe Drinking Water Act regulations, well technologies, and cost of development; greater yields may be available, potential to be investigated prior to new surface source development. | GA or GAA <sup>(3)</sup>                           |

TABLE 3.6 - (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POTENTIAL FUTURE GROUNDWATER SUPPLY SOURCES

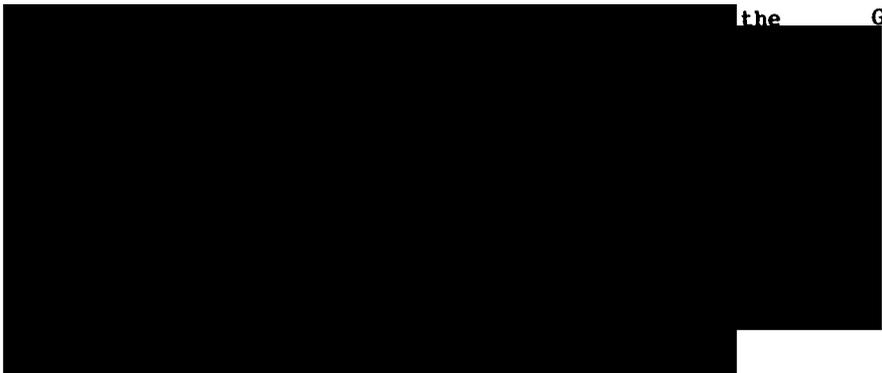
| <u>Identifying Utility</u>                          | <u>Supply Source</u>                                                                                            | <u>Potential Yield MGD</u> | <u>Qualification to Use of Potential Source</u> <sup>(1)</sup>                                                        | <u>Water Quality Classification</u> <sup>(2)</sup> |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| New Hartford Water Company                          | New groundwater sites                                                                                           | N.A.                       | Location survey, sub-surface exploration, testing, land acquisition, permits required.                                | GAA or GA <sup>(3)</sup>                           |
| Plainville Water Company<br>Southington Water Dept. | <br>Reactivate Well #2         | 0.4<br>0.66                | Well rehabilitation<br>Inactive well due to VOC contamination. Packed tower air stripping facility being constructed. | GAA<br>GB/GAA                                      |
| Southington Water Dept.                             | Reactivate Well #6                                                                                              | 1.42                       | Inactive well due to TCE contamination.<br>Packed tower air stripping facility anticipated.                           | GB/GAA                                             |
| Southington Water Dept.                             |                                | 2                          |  the                              | GA                                                 |
| Southington Water Dept.                             | Tomasso Well Field                                                                                              | 1.5                        | Land acquisition, feasibility study, testing and permits required. Roaring Brook may be required for recharge.        | GA                                                 |
| Southington Water Dept.                             | Additional well fields<br>o Woodruff Street<br>o Southwest Southington<br>o Pleasant Street<br>o South End Road | N.A.                       | Location survey, feasibility study, testing, land acquisition and permits required.                                   | GA                                                 |

TABLE 3.6 - (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
POTENTIAL FUTURE GROUNDWATER SUPPLY SOURCES

| <u>Identifying Utility</u> | <u>Supply Source</u>  | <u>Potential Yield MGD</u>                                | <u>Qualification to Use of Potential Source</u> <sup>(1)</sup>                              | <u>Water Quality Classification</u> <sup>(2)</sup> |
|----------------------------|-----------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------|
| Unionville Water Company   | [REDACTED]            | 0.65                                                      | Under construction                                                                          | GAA                                                |
|                            | Charles house well #4 | 0.32                                                      | Currently being tested.                                                                     | GAA                                                |
|                            | [REDACTED]            | 0.2                                                       | Well in place, tested.                                                                      | GAA                                                |
|                            | [REDACTED]            | 0.14                                                      | Sites available. Feasibility study, testing, permits required                               | GAA                                                |
|                            | [REDACTED]            | 0.85                                                      | Site tested 20 years ago. Land aquisition, feasibility study, testing, and permits required | GA                                                 |
|                            | [REDACTED]            | 0.7 - 1.4                                                 | Preliminary explorations done. Rights from two parties required                             | GAA                                                |
|                            | [REDACTED]            | 0.43                                                      | Preliminary exploration. No further action until well is needed                             | GAA                                                |
|                            | [REDACTED]            | 0.14                                                      | Rock well in place. Development and yield testing pending                                   | GAA                                                |
|                            | [REDACTED]            | 0.3                                                       | Rock well in place. Development and yield testing pending                                   | GAA                                                |
|                            | [REDACTED]            | 0.1                                                       | Rock well in place. Development and yield testing pending                                   | GAA                                                |
| [REDACTED]                 | 0.1                   | Rock well in place. Development and yield testing pending | GAA                                                                                         |                                                    |

NOTES:

1. Identified in individual plans or taken from Assessment, whenever available; diversion permits will also be needed for withdrawals in excess of 50,000 gpd.
2. No information provided in individual plans. Potential or existing contamination or water quality problems are listed in the Qualifications to use of potential source, where available.
3. Better location information needed.

TABLE 3.7  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
FUTURE WATER SUPPLY SOURCES  
PROPOSED IN DRAFT INDIVIDUAL PLANS

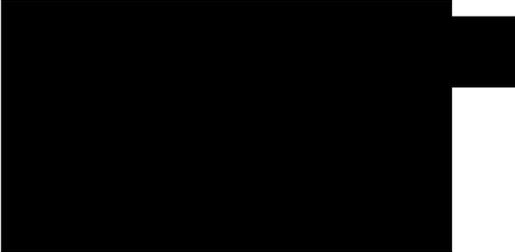
| <u>Water Utility</u>                           | <u>Source</u>                               | <u>Additional Supply to System, MGD</u> |             |             |
|------------------------------------------------|---------------------------------------------|-----------------------------------------|-------------|-------------|
|                                                |                                             | <u>1992</u>                             | <u>2000</u> | <u>2030</u> |
| Avon Water Company                             | [REDACTED]                                  | 1.4                                     | 1.4         | 1.4         |
|                                                |                                             | -                                       | 0.4         | 0.9         |
|                                                |                                             | -                                       | -           | 1.4         |
|                                                |                                             | <u>-</u>                                | <u>-</u>    | <u>2.9</u>  |
|                                                |                                             | 1.4                                     | 1.8         | 6.6         |
| Town of Berlin                                 | [REDACTED]                                  | -                                       | 0.5         | 0.5         |
|                                                |                                             | <u>-</u>                                | <u>0.8</u>  | <u>0.8</u>  |
|                                                |                                             | -                                       | 1.3         | 1.3         |
| Bristol Water Dept.                            | [REDACTED]                                  | 1.7                                     | 1.7         | 1.7         |
|                                                |                                             | -                                       | 0.8         | 0.8         |
|                                                |                                             | -                                       | 0.9         | 0.9         |
|                                                |                                             | <u>0.6</u>                              | <u>0.6</u>  | <u>0.6</u>  |
|                                                |                                             | 2.3                                     | 4.0         | 4.0         |
| Connecticut Water Co.<br>Collinsville Division | Rock Well, Area III                         | -                                       | 0.29        | 0.29        |
|                                                | Somers System                               | 0.04                                    | 0.04        | 0.04        |
| Western and<br>Rockville Systems               | Kupchunos Well Field                        | 0.5                                     | 0.5         | 0.5         |
|                                                | Windsor Locks Well Field                    | 0.6                                     | 0.6         | 0.6         |
|                                                | [REDACTED]                                  | -                                       | -           | 3.0         |
|                                                | Initial increment,<br>Connecticut River WTP | <u>-</u>                                | <u>-</u>    | <u>5.0</u>  |
|                                                |                                             | 1.14                                    | 1.14        | 9.14        |
| Ellington Acres<br>Water Company               | New well                                    | (1)                                     | (1)         | (1)         |
| Hazardville Water Co.                          | [REDACTED]                                  | 0.4                                     | 0.8         | 1.2         |

TABLE 3.7 - (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
FUTURE WATER SUPPLY SOURCES  
PROPOSED IN DRAFT INDIVIDUAL PLANS

| <u>Water Utility</u>             | <u>Source</u>                                                      | <u>Additional Supply to System, MGD</u> |             |             |
|----------------------------------|--------------------------------------------------------------------|-----------------------------------------|-------------|-------------|
|                                  |                                                                    | <u>1992</u>                             | <u>2000</u> | <u>2030</u> |
| Town of Manchester               | [REDACTED]                                                         | 0.5                                     | 0.5         | 0.5         |
|                                  |                                                                    | -                                       | 0.6         | 0.6         |
|                                  |                                                                    | -                                       | 0.9         | 0.9         |
|                                  |                                                                    | -                                       | <u>2.0</u>  | <u>2.0</u>  |
| Metropolitan District Commission | [REDACTED]                                                         | 10.0                                    | 10.0        | 10.0        |
|                                  |                                                                    | New well field(s) (3)                   |             |             |
|                                  |                                                                    | 4.0                                     | 8.0         | 8.0         |
|                                  | [REDACTED]                                                         | -                                       | -           | 20.0        |
|                                  |                                                                    | <u>14.0</u>                             | <u>18.0</u> | <u>38.0</u> |
| New Britain Water Dept.          | [REDACTED]<br>Burlington Brook Diversion                           | 2.5                                     | 2.5         | 2.5         |
|                                  |                                                                    |                                         |             |             |
| New Hartford Water Dept.         | [REDACTED]                                                         | (4)                                     | (4)         | (4)         |
| Plainville Water Co.             | [REDACTED]<br>Reactivation of Crescent Lake (Plainville Reservoir) | 0.4                                     | 0.4         | 0.4         |
|                                  |                                                                    | -                                       | 0.4         | 0.4         |
|                                  |                                                                    | <u>0.4</u>                              | <u>0.8</u>  | <u>0.8</u>  |
| Southington Water Department     | Reactivate Well #2 - Air Stripping                                 | 0.66                                    | 0.66        | 0.66        |
|                                  |                                                                    |                                         |             |             |
|                                  | [REDACTED]                                                         | 2.00                                    | 2.00        | 2.00        |
|                                  | Tomasso Well Field                                                 | 0.75                                    | 1.5         | 1.5         |
|                                  | Reactivate Well #6 - Air Stripping                                 | -                                       | 1.42        | 1.42        |
|                                  |                                                                    | <u>3.41</u>                             | <u>5.58</u> | <u>5.58</u> |

\* Project completed in mid-1988

TABLE 3.7 - (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
FUTURE WATER SUPPLY SOURCES  
PROPOSED IN DRAFT INDIVIDUAL PLANS

| <u>Water Utility</u> | <u>Source</u>                                                                      | <u>Additional Supply to System, MGD</u> |             |             |
|----------------------|------------------------------------------------------------------------------------|-----------------------------------------|-------------|-------------|
|                      |                                                                                    | <u>1992</u>                             | <u>2000</u> | <u>2030</u> |
| Unionville Water Co. |  | 0.65                                    | 0.65        | 0.65        |
|                      |                                                                                    | 0.32                                    | 0.32        | 0.32        |
|                      |                                                                                    | <u>0.43</u>                             | <u>0.43</u> | <u>0.43</u> |
|                      |                                                                                    | 1.40                                    | 1.40        | 1.40        |

NOTES:

1. Plans for new sources identified, but no further quantities provided.
2. Based on "incremental" safe yield of 0.4 mgd.
3. Potential exists for higher yields in aquifers being considered - a possibility which will be fully explored by MDC prior to developing the  as a potable supply. Aquifers under consideration include the following:
  - Simsbury
  - Simsbury/Granby
  - S. Glastonbury
4. Treatment required of present and projected demand from the Reservoir; yield could be expanded as necessary. Alternate groundwater sources would reduce need for surface supply.

The WUCC, in conjunction with various State agencies and interested citizens' groups, has examined the new source recommendations of the individual plans for their compatibility with an integrated approach to water supply planning for the Management Area. Overall, the WUCC recommends a new source implementation program very similar to that shown in Table 3.7. The only new source proposed in the table which is not part of the WUCC-recommended plan is [REDACTED] (New Britain Water Department) - a project dropped due to the lack of demonstrated need over the planning period. The WUCC also recommends that the [REDACTED] be delayed somewhat, with the safe yield envisioned from this project partially compensated for by groundwater from the Hoppers wellfield.

The WUCC believes that several elements of the MDC plan should be universally applied, including the need for water conservation programs in conjunction with new source development, and the need to constantly re-evaluate the timing of, and need for, future projects. Conservation programs could act to significantly reduce demands by a given year over those projected in the individual plans, as could residential or commercial growth rates lower than those anticipated herein.

The WUCC strongly encourages its members to fully support and encourage conservation programs within their systems, and encourages member utilities to routinely budget funds for the development and refinement of conservation programs and conservation education. The WUCC further encourages the public to use water-saving devices. An important first step in gaining hard data regarding the impact of conservation in Connecticut is about to be taken by MDC through the implementation of a domestic retrofit pilot program. As an adjunct to this conservation program, the MDC will also investigate the potential for the substitution of non-potable water for potable water in various industrial uses, with this program conducted as a joint effort by the MDC and several of its larger industrial customers.

Conservation programs have the potential to move source implementation times back - perhaps even beyond the 40 year planning

horizon used in this study. As an example, the diversion of the West Branch of the Farmington River could be delayed from its present 2010 implementation date to 2016 if conservation resulted in a five percent decrease in demand in the MDC service area, and to 2024 if a ten percent decrease could be achieved.

The WUCC also notes that a variety of public and environmental concerns must be addressed for most of the proposed sources before they can be fully implemented. These concerns are fully discussed in the Integrated Report, and include the following:

- ability to meet the needs and concerns of towns within which a new water supply is developed
- impact of the development of various wellfields on low flow characteristics of nearby surface streams, as well as concerns over impacts on sensitive habitats and/or plant and animal species.
- treatment needs of various proposed surface and groundwater sources.
- land-use compatibility with new source development
- concerns expressed by the Farmington River Watershed Association over the proposed future drought contingency use of the West Branch of the Farmington River by MDC.

All of these points of concern will have to be fully addressed by each utility as they prepare diversion permit applications for each source, with issues concerning the West Branch of the Farmington River also examined in detail in the MDC Strategic Planning Process and as part of the ongoing Wild and Scenic River Study of the West Branch being conducted by the U.S. Department of the Interior.

### 3.3.3 Compatibility With Land Use Plans

Recent legislation by the State of Connecticut (Public Act 85-279) requires municipal planning and zoning commissions to include consideration of existing and potential surface and groundwater source protection in their local plans and regulations. The status of water source protection actions taken by the various towns in the area is summarized in Table 3.8. Unfortunately, only a few communities have put significant efforts into developing a protection program. Thirteen towns do not address any form of water supply protection at all in their plans of development, while four towns have not yet adopted or provided the WUCC with a plan of development for use in this planning process.

TABLE 3.8

INVENTORY OF ADOPTED OR PROPOSED  
WATER SUPPLY PROTECTION MECHANISMS (1)

| <u>Community</u> | <u>Watershed Supply By:</u> |                                |                            | <u>Aquifer Protection By:</u> |                                |                            |
|------------------|-----------------------------|--------------------------------|----------------------------|-------------------------------|--------------------------------|----------------------------|
|                  | <u>Special District</u>     | <u>General Use Restriction</u> | <u>Required Open Space</u> | <u>Special District</u>       | <u>General Use Restriction</u> | <u>Required Open Space</u> |
| Avon             | -                           | -                              | P                          | -                             | P                              | P                          |
| Barkhamsted      | -                           | P                              | -                          | -                             | P                              | -                          |
| Berlin           | -                           | P/Z                            | -                          | -                             | -                              | -                          |
| Bloomfield       | -                           | -                              | -                          | -                             | -                              | -                          |
| Bristol          | -                           | -                              | -                          | -                             | -                              | -                          |
| Burlington       | -                           | P                              | -                          | -                             | P                              | -                          |
| Canton           | Z                           | -                              | P                          | -                             | -                              | -                          |
| Colebrook        | -                           | -                              | -                          | -                             | -                              | -                          |
| East Granby      | -                           | -                              | -                          | -                             | -                              | -                          |
| East Hartford    | -                           | -                              | -                          | -                             | -                              | -                          |
| East Windsor     | -                           | P                              | -                          | -                             | P                              | -                          |
| Ellington        | -                           | P                              | P                          | -                             | -                              | -                          |
| Enfield          | -                           | -                              | -                          | Z                             | Z                              | -                          |
| Farmington       | -                           | -                              | -                          | Z                             | -                              | -                          |
| Glastonbury      | -                           | -                              | -                          | -                             | -                              | -                          |
| Granby           | -                           | -                              | -                          | -                             | P                              | -                          |
| Hartford         | -                           | -                              | -                          | -                             | -                              | -                          |
| Hartland         | -                           | -                              | -                          | -                             | -                              | -                          |
| Harwinton        | P                           | P/Z                            | -                          | P                             | P/Z                            | -                          |

TABLE 3.8 (continued)

INVENTORY OF ADOPTED OR PROPOSED  
WATER SUPPLY PROTECTION MECHANISMS (1)

| <u>Community</u> | <u>Watershed Supply By:</u> |                                |                            | <u>Aquifer Protection By:</u> |                                |                            |
|------------------|-----------------------------|--------------------------------|----------------------------|-------------------------------|--------------------------------|----------------------------|
|                  | <u>Special District</u>     | <u>General Use Restriction</u> | <u>Required Open Space</u> | <u>Special District</u>       | <u>General Use Restriction</u> | <u>Required Open Space</u> |
| Manchester       | P                           | P                              | P                          | P                             | P                              | -                          |
| New Britain      | -                           | -                              | -                          | -                             | -                              | -                          |
| New Hartford     | -                           | P                              | -                          | -                             | P                              | -                          |
| Newington        | -                           | -                              | -                          | -                             | -                              | -                          |
| Plainville       | -                           | -                              | -                          | P                             | P                              | -                          |
| Rocky Hill       | -                           | -                              | -                          | -                             | -                              | -                          |
| Simsbury         | -                           | Z                              | -                          | -                             | P                              | -                          |
| Somers           | -                           | -                              | -                          | -                             | -                              | -                          |
| Southington      | -                           | -                              | -                          | -                             | -                              | -                          |
| South Windsor    | -                           | -                              | -                          | P                             | P                              | -                          |
| Suffield         | -                           | -                              | -                          | -                             | P                              | -                          |
| Vernon           | Z                           | -                              | -                          | -                             | -                              | -                          |
| West Hartford    | -                           | -                              | -                          | -                             | -                              | -                          |
| Wethersfield     | -                           | -                              | -                          | -                             | -                              | -                          |
| Windsor          | -                           | -                              | -                          | -                             | -                              | -                          |
| Windsor Locks    | -                           | -                              | -                          | -                             | -                              | -                          |

P = Included in Plan of Development

Z = Included in Zoning Regulations

Of the remaining eighteen towns in the Management Area, only Canton, Enfield, Farmington, Simsbury and Vernon have zoning restrictions or special districts for aquifer or watershed protection. Special districts are proposed in four other communities, including Harwinton, Manchester, Plainville, and South Windsor.

In addition to reviewing plans of development, the WUCC also examined existing zoning patterns in the various Management Area communities to determine the degree of compatibility of existing zoning with potential water resource development. Zoning classifications were grouped into seven categories, as follows:

RH - High Density Residential Zoning

- 0-39,990 sq. ft. per dwelling unit
- Mobile homes
- Planned residential development 0-39,990 sq. ft. per dwelling unit
- Planned residential development

RL - Low Density Residential Zoning

- Greater than or equal to 40,000 sq. ft. per dwelling unit
- Planned residential development - greater than 40,000 sq. ft.

M - Multiple Family Residential Zoning

- Apartments, condominiums, etc.

C - Commercial Zoning

- Includes planned commercial development

I - Industrial Zoning

- Includes planned industrial development

A - Agricultural Zoning

O - Open Space

- Includes floodplains, parks, reserves, and other dedicated open space

The zoning classifications were mapped for all towns in the Management Area except Hartford, and were overlain on a base map which showed present and potential surface and groundwater sources (Hartford was excluded because its zoning patterns have not yet been input to the

**TABLE 3.9**  
**ZONING CLASSIFICATIONS AND RISK CATEGORIES OF MAJOR STRATIFIED DRIFT AREAS** (1)

| COMMUNITY     | PERCENT COVERAGE OF ZONING AREAS <sup>(2)</sup> |        |     |     |     |     |     | Other |
|---------------|-------------------------------------------------|--------|-----|-----|-----|-----|-----|-------|
|               | RH/D                                            | RL/A-C | M/D | I/E | C/D | A/C | O/A |       |
| AVON          | 19                                              | 32     | 0   | 8   | 7   | 12  | 22  |       |
| BARKHAMSTED   | 1                                               | 35     | 0   | 0   | 9   | 0   | 0   | 55    |
| BERLIN        | 17                                              | 47     | 0   | 25  | 8   | 0   | 3   | 0     |
| BLOOMFIELD    | 51                                              | 5      | 1   | 41  | 2   | 0   | 0   | 0     |
| BRISTOL       | 51                                              | 20     | 3   | 19  | 7   | 0   | 0   | 0     |
| BURLINGTON    | 91                                              | 0      | 0   | 6   | 2   | 0   | 0   | 1     |
| CANTON        | 32                                              | 48     | 0   | 8   | 11  | 0   | 0   | 0     |
| COLEBROOK     | 0                                               | 76     | 0   | 0   | 24  | 0   | 0   | 0     |
| EAST GRANBY   | 24                                              | 2      | 2   | 33  | 3   | 27  | 9   | 0     |
| EAST HARTFORD | 62                                              | 0      | 0   | 19  | 15  | 0   | 0   | 0     |
| EAST WINDSOR  | 74                                              | 12     | 0   | 8   | 4   | 0   | 0   | 2     |
| ELLINGTON     | 1                                               | 59     | 2   | 30  | 8   | 0   | 0   | 0     |
| ENFIELD       | 46                                              | 28     | 0   | 19  | 5   | 0   | 0   | 0     |
| FARMINGTON    | 20                                              | 23     | 3   | 14  | 3   | 0   | 37  | 0     |
| GLASTONBURY   | 19                                              | 34     | 0   | 7   | 4   | 0   | 34  | 2     |
| GRANBY        | 46                                              | 43     | 1   | 8   | 2   | 0   | 0   | 0     |
| HARTFORD      | --                                              | --     | --  | --  | --  | --  | --  | 1     |
| HARTLAND      | 0                                               | 100    | 0   | 0   | 0   | 0   | 0   | 0     |
| HARWINTON     | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0     |
| MANCHESTER    | 75                                              | 0      | 3   | 14  | 8   | 0   | 0   | 0     |
| NEW BRITAIN   | 61                                              | 0      | 4   | 20  | 15  | 0   | 0   | 0     |
| NEW HARTFORD  | 7                                               | 88     | 0   | 3   | 2   | 0   | 0   | 0     |
| NEWINGTON     | 50                                              | 0      | 7   | 17  | 25  | 0   | 1   | 0     |
| PLAINVILLE    | 15                                              | 0      | 35  | 22  | 11  | 0   | 11  | 0     |
| ROCKY HILL    | 24                                              | 2      | 0   | 21  | 14  | 0   | 34  | 5     |
| SIMSBURY      | 10                                              | 57     | 1   | 10  | 2   | 0   | 20  | 0     |
| SOMERS        | 0                                               | 96     | 0   | 3   | 1   | 0   | 0   | 0     |
| SOUTHINGTON   | 60                                              | 21     | 0   | 10  | 9   | 0   | 0   | 0     |
| SOUTH WINDSOR | 12                                              | 61     | 2   | 21  | 4   | 0   | 0   | 0     |
| SUFFIELD      | 12                                              | 67     | 1   | 18  | 1   | 0   | 0   | 0     |
| VERNON        | 67                                              | 4      | 0   | 10  | 18  | 0   | 1   | 0     |
| WEST HARTFORD | 59                                              | 0      | 11  | 26  | 4   | 0   | 0   | 0     |
| WETHERSFIELD  | 21                                              | 0      | 1   | 1   | 2   | 0   | 75  | 0     |
| WINDSOR       | 36                                              | 0      | 0   | 19  | 4   | 26  | 0   | 0     |
| WINDSOR LOCKS | 44                                              | 0      | 0   | 45  | 4   | 0   | 0   | 0     |

(1) Risk Categories

- A - virtually no risk
- B - minimal risk
- C - slight to moderate risk
- D - substantial risk
- E - major threat to water supply

- (2) Column headings show zoning category followed by risk category. Percentages are approximate, and are meant to be used for comparative purposes only.
- (3) Represents unzoned areas containing transportation corridors, major water bodies and reserved parklands.

Source: Conn. DEP Geographical Info. System.

TABLE 3.10

ZONING CLASSIFICATIONS AND RISK CATEGORIES OF WATERSHED AREAS<sup>(1)</sup>

| COMMUNITY     | PERCENT COVERAGE OF ZONING AREAS <sup>(2)</sup> |        |     |     |     |     | O/A | Other <sup>(3)</sup> |
|---------------|-------------------------------------------------|--------|-----|-----|-----|-----|-----|----------------------|
|               | RH/D                                            | RL/A-C | M/D | I/E | C/D | A/C |     |                      |
| AVON          | 0                                               | 99     | 0   | 0   | 0   | 0   | 1   | 0                    |
| BARKHAMSTED   | 0                                               | 11     | 0   | 0   | 0   | 0   | 0   | 89                   |
| BERLIN        | 1                                               | 35     | 0   | 0   | 0   | 0   | 64  | 0                    |
| BLOOMFIELD    | 0                                               | 100    | 0   | 0   | 0   | 0   | 0   | 0                    |
| BRISTOL       | 72                                              | 25     | 1   | 1   | 1   | 0   | 0   | 0                    |
| BURLINGTON    | 96                                              | 0      | 0   | 3   | 1   | 0   | 0   | 0                    |
| CANTON        | 47                                              | 0      | 0   | 0   | 0   | 0   | 0   | 53                   |
| COLEBROOK     | 0                                               | 93     | 0   | 0   | 7   | 0   | 0   | 0                    |
| EAST GRANBY   | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| EAST HARTFORD | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| EAST WINDSOR  | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| ELLINGTON     | 0                                               | 72     | 1   | 12  | 2   | 0   | 0   | 13                   |
| ENFIELD       | 83                                              | 0      | 0   | 5   | 6   | 0   | 0   | 6                    |
| FARMINGTON    | 0                                               | 98     | 0   | 2   | 0   | 0   | 0   | 0                    |
| GLASTONBURY   | 0                                               | 47     | 0   | 0   | 0   | 0   | 53  | 0                    |
| GRANBY        | 0                                               | 100    | 0   | 0   | 0   | 0   | 0   | 0                    |
| HARTFORD      | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| HARTLAND      | 0                                               | 99     | 0   | 0   | 1   | 0   | 0   | 0                    |
| HARWINTON     | 0                                               | 98     | 0   | 2   | 0   | 0   | 0   | 0                    |
| MANCHESTER    | 97                                              | 0      | 3   | 0   | 0   | 0   | 0   | 0                    |
| NEW BRITAIN   | 98                                              | 0      | 0   | 2   | 0   | 0   | 0   | 0                    |
| NEW HARTFORD  | 0                                               | 99     | 0   | 0   | 1   | 0   | 0   | 0                    |
| NEWINGTON     | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| PLAINVILLE    | 0                                               | 71     | 0   | 29  | 0   | 0   | 0   | 0                    |
| ROCKY HILL    | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| SIMSBURY      | 0                                               | 100    | 0   | 0   | 0   | 0   | 0   | 0                    |
| SOMERS        | 0                                               | 99     | 0   | 1   | 0   | 0   | 0   | 0                    |
| SOUTHINGTON   | 0                                               | 100    | 0   | 0   | 0   | 0   | 0   | 0                    |
| SOUTH WINDSOR | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| SUFFIELD      | 2                                               | 80     | 2   | 0   | 1   | 0   | 0   | 15                   |
| VERNON        | 80                                              | 2      | 0   | 1   | 0   | 0   | 17  | 0                    |
| WEST HARTFORD | 99                                              | 1      | 0   | 0   | 0   | 0   | 0   | 0                    |
| WETHERSFIELD  | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| WINDSOR       | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |
| WINDSOR LOCKS | 0                                               | 0      | 0   | 0   | 0   | 0   | 0   | 0                    |

**(1) Risk Categories**

- A - virtually no risk
- B - minimal risk
- C - slight to moderate risk
- D - substantial risk
- E - major threat to water supply

(2) Column headings show zoning category followed by risk category. Percentages are approximate, and are meant to be used for comparative purposes.

(3) Represents unzoned areas containing transportation corridors, major water bodies, and reserved parkland.

Source: Conn. DEP Geographical Info. System

TABLE 3.11

IN THE UPPER CONNECTICUT MANAGEMENT AREA

| <u>Utility</u><br><u>From</u> | <u>To</u>  | <u>Capacity and/or</u><br><u>Diameter</u>        | <u>Contract?</u> | <u>Meter?</u> | <u>Comments</u>                                       |
|-------------------------------|------------|--------------------------------------------------|------------------|---------------|-------------------------------------------------------|
| [REDACTED]                    | [REDACTED] | [REDACTED]                                       | Yes              | Yes           | - Routinely used interconnection                      |
|                               |            |                                                  | Yes              | Yes           | - Routinely used interconnection                      |
|                               |            |                                                  | No               | No            | - Consumption from aggregate retail customer's meters |
|                               |            |                                                  | No               | No            | - Emergency two-way supply                            |
|                               |            |                                                  | Yes              | No            | - Routinely used two-way inter-                       |
|                               |            |                                                  | Yes              | No            | connections; consumption determined                   |
|                               |            |                                                  | Yes              | No            | from aggregate retail customer                        |
|                               |            |                                                  | Yes              | No            | meter readings                                        |
|                               |            |                                                  | Yes              | No            |                                                       |
|                               |            |                                                  | Yes              | No            |                                                       |
|                               |            |                                                  | Yes              | No            |                                                       |
|                               |            |                                                  | Yes              | No            |                                                       |
|                               |            |                                                  | Yes              | No            |                                                       |
|                               |            |                                                  | Yes              | No            |                                                       |
|                               |            |                                                  | Yes              | Yes           | - Routine use as supply for 16 homes                  |
|                               |            |                                                  | Yes              | No            | - Two connections for emergency use                   |
|                               |            |                                                  | Yes              | 8"            | - Proposed for mutual aid in emergencies              |
|                               |            |                                                  | Yes              | Yes           | - Emergency two-way supply                            |
| Yes                           | Yes        | - Three emergency interconnections for fire flow |                  |               |                                                       |
|                               |            | - [REDACTED]                                     |                  |               |                                                       |
|                               |            | - [REDACTED]                                     |                  |               |                                                       |

(Old County Road)

TABLE 3.11

INTERCONNECTIONS IN THE UPPER CONNECTICUT MANAGEMENT AREA

(Continued)

| <u>Utility</u><br><u>From</u> | <u>To</u>  | <u>Capacity and/or</u><br><u>Diameter</u> | <u>Contract?</u> | <u>Meter?</u> | <u>Comments</u>                                                                               |
|-------------------------------|------------|-------------------------------------------|------------------|---------------|-----------------------------------------------------------------------------------------------|
| [REDACTED]                    | [REDACTED] | -                                         | -                | -             | - Proposed to serve 200 homes with EDB - contaminated wells                                   |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | - Routinely used interconnection                                                              |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | - Routinely used interconnection                                                              |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | - Routinely used interconnection                                                              |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | No               | No            | - Consumption from aggregate retail customer's meters                                         |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | No               | No            | - Emergency two-way supply                                                                    |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | - Routinely used interconnection                                                              |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | - Emergency use due to unfiltered nature of source                                            |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | - Capacity as per contract limit<br>- Theoretically used only until Berlin is self-sufficient |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | [REDACTED]                                                                                    |
| [REDACTED]                    | [REDACTED] | [REDACTED]                                | Yes              | Yes           | [REDACTED]                                                                                    |

TABLE 3.11

INTERCONNECTIONS IN THE UPPER CONNECTICUT MANAGEMENT AREA  
(Continued)

| <u>Utility</u><br><u>From</u> | <u>To</u> | <u>Capacity and/or</u><br><u>Diameter</u> | <u>Contract?</u> | <u>Meter?</u> | <u>Comments</u>                                                                                     |
|-------------------------------|-----------|-------------------------------------------|------------------|---------------|-----------------------------------------------------------------------------------------------------|
|                               |           |                                           | Yes              | Yes           | -                                                                                                   |
|                               |           |                                           | Yes              | Yes           | -                                                                                                   |
|                               |           |                                           | -                | No            |                                                                                                     |
|                               |           |                                           | -                | Yes           | - Routinely used interconnection                                                                    |
|                               |           |                                           | Yes              | Yes           |                                                                                                     |
|                               |           |                                           | -                | -             | - Inactive emergency interconnection                                                                |
|                               |           |                                           | Yes              | Yes           |                                                                                                     |
|                               |           |                                           | -                | -             | - Not a system connection: use of a well supply                                                     |
|                               |           |                                           | Yes              | Yes           | - Water purchased can be increased in case of emergency; also limited to 20 mgal per 3 month period |

TABLE 3.11

INTERCONNECTIONS IN THE UPPER CONNECTICUT MANAGEMENT AREA  
(Continued)

| <u>Utility</u> |           | <u>Capacity and/or</u> | <u>Contract?</u> | <u>Meter?</u> | <u>Comments</u>                                                                                                       |
|----------------|-----------|------------------------|------------------|---------------|-----------------------------------------------------------------------------------------------------------------------|
| <u>From</u>    | <u>To</u> | <u>Diameter</u>        |                  |               |                                                                                                                       |
|                |           |                        | Yes              | No            | - Routinely used two-way interconnections<br>Consumption determined from aggregate<br>retail customer meter readings. |
|                |           |                        | Yes              | No            |                                                                                                                       |
|                |           |                        | Yes              | No            |                                                                                                                       |
|                |           |                        | Yes              | No            |                                                                                                                       |
|                |           |                        | Yes              | No            |                                                                                                                       |
|                |           |                        | Yes              | No            |                                                                                                                       |
|                |           |                        | Yes              | No            |                                                                                                                       |
|                |           |                        | Yes              | No            |                                                                                                                       |

(1) Listed as retail interconnect to Berlin WCC in N. Britain WD Individual Plan

State's geographical information base and due to the difficulty inherent in altering present land use patterns).

Conflicts between land use based on zoning and existing and potential groundwater and surface water supplies are illustrated in Tables 3.9 and 3.10. As shown, the percentage of zoning classifications varies widely from town to town, with most high percentage higher risk zoning associated with the high density residential category. Other categories are also of scattered concern, particularly the industrial zoning in Berlin, Bloomfield, Ellington, Plainville, West Hartford and Windsor Locks.

The WUCC recommends that communities in the Upper Connecticut Area which have not taken sufficient steps to protect their existing and future supplies (as identified as part of this coordinated planning process) set up an ad hoc committee to establish appropriate protection procedures, both for watersheds and for aquifers (as recommended by the Aquifer Protection Task Force). Representatives of each community's water suppliers should be invited to participate in the development of the community's water resource protection strategies. The local committee should use the water resource protection features listed in Table 3.8 as a starting point checklist. In this way, it will be clear in which areas the municipality is deficient so that its plan of development and zoning regulations can be amended accordingly.

#### 3.3.4 Coordination and Cooperation Between Utilities

The Integrated Report discusses three forms of cooperation and coordination between utilities within the Management Area: interconnections, joint use facilities, and satellite management. Each of these is briefly reviewed in the following paragraphs.

##### 3.3.4.1 Interconnections

Interconnections within the Upper Connecticut River Water Supply Management Area that are currently in use, or have been identified as being planned or implemented in individual plans, are listed and briefly described in Table 3.11. (Interconnections are listed alphabetically in terms of the supplying utility.) As shown in the table, interconnections between water systems are a relatively routine feature within the Upper

Connecticut Area, both as a regular supply source and as an emergency source. Overall, there are 38 active interconnections between WUCC members, with several more either proposed or going through an approval process.

In the future, interconnections are likely to be particularly appropriate for many of the utilities reported in the Water Supply Assessment to have problems with inadequate safe yields, a single source of supply, seasonal water use restrictions, or some degree of source contamination. These utilities are listed in Table 3.12, along with previously reported problems and the most likely neighboring utility to interconnect with. The exact requirements and conditions necessary for each interconnection will vary from system to system, and each must be carefully examined by water supply professionals prior to committing to long-term recommended solutions.

The following recommendations were made by the WUCC as essential to any continuing regional interconnection program in the Upper Connecticut River Management Area:

1. Given the potential financial burden to smaller utilities of the area of interconnection installation, financial assistance programs are needed to foster an interconnection program for the area.
2. Interconnections should not be subject to DEP's flow diversion requirements.
3. The State should take an active role in the overall coordination of interconnections and provide the motivation for developing accurate data and integrating this data into a viable management tool.
4. Interconnections for effective and equitable transfer of water, particularly under emergency conditions, should be overseen by an independent body, by the WUCC, or the State.
5. Priority effort should be directed toward the development of a consistent and reliable program of generating, confirming and updating information on interconnections, with particular emphasis on emergency links.
6. It is recommended that the basic requirements for data include:
  - (a) A consistent definition of flow quantities available through an interconnection.
  - (b) Determination of actual flow quantities and the physical condition of interconnections.
  - (c) Operation of the interconnection must be specified and access to valve controls confirmed.
  - (d) The impact of operating interconnections which have not been utilized for long periods of time should be evaluated.
7. Emergency interconnections, which see little or no use for extended periods, should be inspected at regular intervals (not less frequently than annually, with semi-annual inspections preferable).

TABLE 3.12

POTENTIAL INTERCONNECTION SOLUTIONS  
TO REPORTED EXISTING PROBLEMS

| <u>Utility</u>                     | <u>Reported Problems</u>                                      | <u>Interconnect To:</u> |
|------------------------------------|---------------------------------------------------------------|-------------------------|
| [REDACTED]                         | - Single source                                               | [REDACTED]              |
| [REDACTED]                         | - Organohalides                                               | [REDACTED] (1)          |
| [REDACTED]                         | - Seasonal deficiencies                                       | [REDACTED]              |
| [REDACTED]                         | - Single Source                                               | [REDACTED]              |
| [REDACTED]                         | - Elevated sulfate, iron, manganese, sodium (1 well)          | [REDACTED] 1) (2) (5)   |
| [REDACTED]                         | - Insufficient peak hour capacity                             | [REDACTED]              |
| [REDACTED]                         | Elevated hardness and sodium                                  | [REDACTED] (2) (5)      |
| [REDACTED]                         | Insufficient peak hour capacity                               | [REDACTED]              |
| [REDACTED]                         | - Elevated sodium                                             | [REDACTED] (2) (5)      |
| [REDACTED]                         | - Single source                                               | [REDACTED] (2)          |
| [REDACTED]                         | - Single source                                               | [REDACTED] (2)          |
| [REDACTED]                         | - Insufficient peak hour capacity                             | [REDACTED]              |
| Connecticut Correctional Institute | - TCE contamination                                           | Hazardville WC (4)      |
| [REDACTED]                         | - Single source                                               | [REDACTED] (2)          |
| [REDACTED]                         | - Insufficient peak hour capacity                             | [REDACTED]              |
| [REDACTED]                         | - Elevated coliform                                           | [REDACTED]              |
| [REDACTED]                         | - Elevated nitrates                                           | [REDACTED]              |
| [REDACTED]                         | - Elevated coliform                                           | [REDACTED]              |
| [REDACTED]                         | - Single source                                               | [REDACTED] (2)          |
| [REDACTED]                         | - Elevated coliform                                           | [REDACTED]              |
| [REDACTED]                         | - Interconnection required for expansion past 1,000 customers | [REDACTED] (1)          |
| [REDACTED]                         | - Single source                                               | [REDACTED] (2) (5)      |
| [REDACTED]                         | - Insufficient peak hour capacity                             | [REDACTED]              |
| [REDACTED]                         | - Chromium contamination                                      | [REDACTED] (2)          |

TABLE 3.12

POTENTIAL INTERCONNECTION SOLUTIONS  
TO REPORTED EXISTING PROBLEMS  
(Continued)

| <u>Utility</u> | <u>Reported Problems</u>                                                                                      | <u>Interconnect To:</u>              |
|----------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------|
| [REDACTED]     | - Single source<br>- Elevated sodium, iron, manganese, sulfate<br>- Insufficient peak hour capacity           | [REDACTED] (1) (2) (5)               |
| [REDACTED]     | - Single source<br>- Elevated nitrates                                                                        | [REDACTED]                           |
| [REDACTED]     | - Single source<br>- Elevated hardness, sodium, sulfate                                                       | [REDACTED]                           |
| [REDACTED]     | - Single source<br>- Elevated coliform                                                                        | [REDACTED] (2) (5)                   |
| [REDACTED]     | - Elevated hardness and iron<br>- Insufficient peak hour capacity                                             | [REDACTED] (2) (5)<br>[REDACTED] (2) |
| [REDACTED]     | - Single source<br>- Elevated taste, odor, nitrates, sodium, Gallionella<br>- Insufficient peak hour capacity | [REDACTED] (2)<br>[REDACTED]         |
| [REDACTED]     | - Single source<br>- Insufficient peak hour capacity                                                          | [REDACTED]                           |
| [REDACTED]     | - Insufficient peak hour capacity                                                                             | [REDACTED] (2)                       |
| [REDACTED]     | - Single source<br>- Elevated sodium                                                                          | [REDACTED]                           |
| [REDACTED]     | - Single source                                                                                               | [REDACTED] (2)                       |
| [REDACTED]     | - Single source<br>- Elevated hardness                                                                        | [REDACTED] (1) (2) (5)               |
| [REDACTED]     | - Single source<br>- Low pH                                                                                   | [REDACTED] (2) (5)                   |
| [REDACTED]     | - Elevated sodium                                                                                             | [REDACTED] (2) (5)                   |
| [REDACTED]     | - Single source                                                                                               | [REDACTED] (1) (2) (5)               |

TABLE 3.12

POTENTIAL INTERCONNECTION SOLUTIONS  
TO REPORTED EXISTING PROBLEMS

(Continued)

| <u>Utility</u>         | <u>Reported Problems</u>                                                                              | <u>Interconnect To:</u>                                |
|------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| [REDACTED]             | - Single source<br>- Elevated pH and sodium                                                           | [REDACTED] (2) (5)                                     |
| [REDACTED]             | - Single source<br>- Elevated sulfate                                                                 | [REDACTED] (2) (5)                                     |
| [REDACTED]             | - Single source                                                                                       | [REDACTED] (2) (5)                                     |
| [REDACTED]             | - Single source<br>- Insufficient peak hour capacity                                                  | [REDACTED] (2) (5)                                     |
| [REDACTED]             | - Single source<br>- EDB contamination<br>- Insufficient peak hour capacity                           | [REDACTED]                                             |
| [REDACTED]             | - Single source<br>- Insufficient peak hour capacity                                                  | [REDACTED]                                             |
| [REDACTED]             | - Single source                                                                                       | [REDACTED]                                             |
| [REDACTED]             | - Insufficient peak hour capacity                                                                     | [REDACTED]                                             |
| [REDACTED]             | - Single source<br>- EDB contamination<br>- Insufficient peak hour capacity                           | [REDACTED] 4)                                          |
| Southington            | - Limited future groundwater withdrawals permitted by DEP resulting in insufficient peak day capacity | New Britain, S. Central Authority, MDC, and/or Bristol |
| Tariffville FD         | - Use restrictions during high demand periods                                                         | Village WC                                             |
| [REDACTED]             | - Single source<br>- Insufficient peak hour capacity                                                  | [REDACTED]                                             |
| [REDACTED]             | - Single source<br>- Corrosive water                                                                  | [REDACTED]                                             |
| Turkey Hill Apartments | - Elevated hardness                                                                                   | Village WC (1)                                         |
| Vernon Village, Inc.   | - Detectable TCE and PCE<br>- Elevated coliform<br>- Insufficient peak hour capacity                  | CWC/Rockville (2)<br>CWC/Northern/Western (3)          |

TABLE 3.12

POTENTIAL INTERCONNECTION SOLUTIONS  
TO REPORTED EXISTING PROBLEMS  
(Continued)

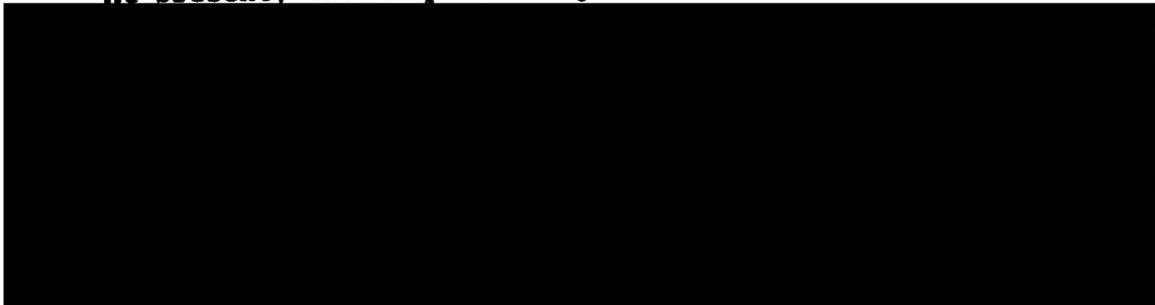
| <u>Utility</u>     | <u>Reported Problems</u>                                                          | <u>Interconnect To:</u>                 |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------|
| [REDACTED]         | - Single source<br>- Insufficient peak hour capacity<br>- Contamination potential | [REDACTED]                              |
| [REDACTED]         | - Single source<br>- Insufficient peak hour capacity                              | [REDACTED]                              |
| West Service Corp. | - Single Source<br>- Insufficient peak hour capacity                              | CWC/Northern/<br>Western <sup>(3)</sup> |
| [REDACTED]         | - Single source                                                                   | [REDACTED]                              |
| [REDACTED]         | - Single source                                                                   | [REDACTED]                              |

- (1) Interconnection may need to be delayed until appropriate expansion takes place within exclusive service area of supplying utility.
- (2) Interconnection would exacerbate predicted 2030 deficit for supplying utility if new sources are not developed.
- (3) Sum of full demand of all recommended interconnections would create a supply system deficit by 2030.
- (4) As per previous proposals.
- (5) A prerequisite of the supply utility may involve bringing receiving distribution system up to its standards, emergency conditions excepted.

8. A comprehensive program of testing of interconnections should be prepared and implemented.

#### 3.3.4.2 Joint Use

At present, the only formal joint use arrangement in effect in the



Connecticut Area will likely be dominated by infrastructure - particularly in terms of raw or finished water sources. This will be especially true if the many interconnection recommendations made herein are followed, with the smaller utilities then able to "jointly use" the supply, transmission, and treatment facilities that might otherwise be economically unfeasible.

This is not to say, however, that other joint use arrangements will not continue (or increase) within the Management Area. For example, it is likely that loaning of equipment from one utility to another will remain a common practice, particularly during emergency situations. It is also very possible that joint use laboratories could be established by utilities in order to more cost-effectively meet the requirements of the 1986 Safe Drinking Water Act (SDWA). Some form of joint use, or shared facilities, is also likely to be necessary for all smaller utilities within the Management Area as the monitoring requirements of the SWDA take effect.

#### 3.3.4.3 Satellite Management

The regulations issued with Public Law 85-535 require a plan for satellite management or transfer of ownership which identifies the utilities which have both the ability and willingness to assume satellite management, the identification of public water systems willing to have such management provided by another utility, and the development of a water system satellite management program. For the purposes of this report, satellite management was defined in the broadest possible sense, and included actions ranging from simple assistance in operations

or meeting regulatory requirements to complete takeover of another utility.

Satellite management of any sort is not a widespread practice within the Upper Connecticut River Management Area, although it does occur to some extent. Although there are not many utilities presently providing satellite management, several, including CWC, MDC, the Granite State Gas and Electric Company, and R. J. Black and Sons have expressed an interest in providing, or expanding, such service in the future. It is also anticipated that the State's desire not to allow the proliferation of new water systems will provide an impetus for increased satellite management. Due to the proximity of the majority of the smaller systems in the Upper Connecticut area to larger utilities, it is likely that satellite management will include the eventual incorporation of many smaller systems into a larger system.

At present, the WUCC believes that some form of satellite management will eventually become a necessity for all individually run small systems in the Upper Connecticut Public Water Supply Management Area, whether it be in terms of contracting for operation and maintenance assistance, provision of laboratory services, or system takeover. The most likely candidates for comprehensive satellite management services (or system takeover) are those systems which have reported existing problems in terms of the quality of water available through their existing supply sources or in terms of their financial capabilities. Drawing on Assessment information, these would include the following:

|                                                |                                         |
|------------------------------------------------|-----------------------------------------|
| Avery Heights Water Association <sup>(1)</sup> | Llynwood, Inc.                          |
| Briarwood College <sup>(2)</sup>               | Maple Ridge Farms <sup>(1)</sup>        |
| Burnham Acres <sup>(1)</sup>                   | Metacomet Village <sup>(1)</sup>        |
| Chelsea Commons <sup>(1)</sup>                 | Neipsic Woods Section 3 <sup>(1)</sup>  |
| Chestnut Hill Heights                          | Oakwood, Inc.                           |
| East Windsor Housing Authority                 | Orchard Hill Association <sup>(1)</sup> |
| Ellsworth Estates                              | Penwood Association <sup>(1)</sup>      |
| Ethel Walker School                            | Rock Tree Apartments <sup>(1)</sup>     |
| Farmington Line West Condos <sup>(1)</sup>     | School Hill Association <sup>(1)</sup>  |
| High Manor MHP                                 | Somersmill Water Assoc. <sup>(1)</sup>  |
| Higley Village <sup>(1)</sup>                  | Trailsend Water Company <sup>(1)</sup>  |
| Hillsdale Water Co-op <sup>(1)</sup>           | Turkey Hill Apartments <sup>(1)</sup>   |
| Hilltop, Inc. <sup>(1)</sup>                   | Vernon Village, Inc. <sup>(1)</sup>     |
| Juniper Club, Inc. <sup>(1)</sup>              | Wallens Hills Apartments <sup>(1)</sup> |
| Liebman Apartments <sup>(1)</sup>              |                                         |

- (1) Systems also have reported or potential quantity as well as quality problems.
- (2) Likely to require satellite management beyond present nonroutine maintenance.

### 3.3.5 Minimum Design Standards

The WUCC has agreed to adopt, as a base, the minimum design standards embodied in the recently promulgated Final Regulations for issuing certificates of public convenience and necessity for small water companies. However, the WUCC has strongly emphasized the need for flexibility in applying these standards to specific situations, and has noted the desirability of maintaining individual utility standards where they have been shown to be appropriate.

### 3.3.6 Financial Data

Table 3.13 provides a listing of the capital costs (present dollars) associated with the development of the new water sources identified by the WUCC. All costs have been obtained from the utilities' individual plans or have been estimated by the utilities apart from the individual planning process. Although several of the costs shown for improvements recommended by 1992 have been estimated with some degree of detail, this is not the case for most of the 1992 estimates and for all of the year 2000 and 2030 estimates. It cannot be emphasized strongly enough that these costs are listed for illustrative purposes only, and may change dramatically as design details and constraints are fully developed.

Although the estimated expenditures shown in Table 3.13 are significant, they are likely to be dominated over the planning period by the capital, operating, and maintenance costs associated with routine system repair and upgrading projects; not to mention the expense of everyday system operation and preventative maintenance. Thus, proper fiscal planning by the various utilities will generally allow funds to be made available for the new source improvements without significant adverse long-term impacts to the rate structures that would have otherwise been in place.

**TABLE 3.13**  
**UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA**  
**ESTIMATED COST OF PROPOSED CONSTRUCTION PROJECTS**

| WATER UTILITY             | PROJECT                                                      | CAPITAL COSTS |                             |              |
|---------------------------|--------------------------------------------------------------|---------------|-----------------------------|--------------|
|                           |                                                              | 1992          | 2000                        | 2030         |
| Avon Water Co.            | [REDACTED]                                                   | 350,000       | -                           | -            |
|                           | [REDACTED]                                                   | 150,000       | -                           | -            |
|                           | [REDACTED]                                                   | -             | \$ 200,000                  | -            |
|                           | [REDACTED]                                                   | -             | \$ 125,000                  | -            |
|                           | [REDACTED]                                                   | -             | -                           | \$ 350,000   |
|                           | [REDACTED]                                                   | -             | -                           | \$ 150,000   |
| Berlin                    | [REDACTED]                                                   | -             | \$ 100,000                  | -            |
|                           | [REDACTED]                                                   | -             | 162,000                     | -            |
|                           | Woodlawn Road Well Field                                     | -             | 125,000                     | -            |
| Bristol Water Dept.       | Hoppers Wellfield                                            | (2)           | -                           | -            |
|                           | [REDACTED]                                                   | (1)           | -                           | -            |
|                           | Rock Brook Diversion                                         | -             | (1)                         | -            |
|                           | Leadmine Brook Diversion                                     | -             | (1)                         | -            |
|                           | Poland River Diversion                                       | -             | -                           | (2)          |
| Connecticut Water Co.     | Rock Well Area III                                           | -             | (2)                         | -            |
|                           | Gulf Road Tank Site                                          | (2)           | -                           | -            |
|                           | [REDACTED]                                                   | \$ 900,000    | -                           | -            |
|                           | Windsor Locks Well Field                                     | \$2,500,000   | -                           | -            |
|                           | [REDACTED]                                                   | -             | -                           | (2)          |
|                           | Initial Inc Conn River WTP                                   | -             | -                           | (2)          |
| Ellington Acres Water Co. | New Well in Northern Portion of Service Area                 | \$ 110,000    | -                           | -            |
| Hazardville Water Co.     | [REDACTED]                                                   | \$ 200,000    | -                           | -            |
| Town of Manchester        | [REDACTED]                                                   | \$ 35,000     | -                           | -            |
|                           | [REDACTED]                                                   | -             | \$ 100,000                  | -            |
|                           | [REDACTED]                                                   | -             | \$10,000,000 <sup>(4)</sup> | -            |
| MDC                       | [REDACTED]                                                   | \$2,500,000   | \$ 2,500,000                | -            |
|                           | [REDACTED]                                                   | \$10,000,000  | \$10,000,000                | -            |
|                           | [REDACTED]                                                   | -             | -                           | \$80,000,000 |
| New Britain               | Lamson Corner Reservoir Project (Burlington Brook Diversion) | -             | \$ 3,000,000 <sup>(3)</sup> | -            |
| New Hartford Water Co.    | [REDACTED]                                                   | \$1,600,000   | -                           | -            |

TABLE 3.13 (Continued)  
UPPER CONNECTICUT RIVER WATER SUPPLY MANAGEMENT AREA  
ESTIMATED COST OF PROPOSED CONSTRUCTION PROJECTS

| <u>WATER UTILITY</u>    | <u>PROJECT</u>                   | <u>1992</u>               | <u>CAPITAL COSTS</u> |             |
|-------------------------|----------------------------------|---------------------------|----------------------|-------------|
|                         |                                  |                           | <u>2000</u>          | <u>2030</u> |
| Plainville Water Co.    | [REDACTED]                       | \$ 200,000                | -                    | -           |
| Southington Water Dept. | [REDACTED]                       | \$ 733,500                | -                    | -           |
|                         | Reactivate Well #6-Air Stripping | \$ 750,000                | -                    | -           |
| Southington Water Dept. | [REDACTED]                       | \$ 20,000                 | -                    | -           |
|                         | [REDACTED]                       | \$ 450,000                | -                    | -           |
|                         | [REDACTED]                       | 530,300                   | -                    | -           |
|                         | [REDACTED]                       | 250,000                   | -                    | -           |
|                         | [REDACTED]                       | 439,300                   | -                    | -           |
|                         | <b>Tomasso Well Fields</b>       |                           |                      |             |
|                         | Well #11-Tests                   | \$ 20,000                 | -                    | -           |
|                         | -Well                            | 470,000                   | -                    | -           |
|                         | -Main                            | \$ 283,000                | -                    | -           |
|                         | Well #12-Well                    | \$ 250,000                | -                    | -           |
|                         | -Main                            | \$ 283,000                | -                    | -           |
| Unionville Water Co.    | [REDACTED]                       | \$ 200,000                | -                    | -           |
|                         | [REDACTED]                       | \$ 200,000 <sup>(5)</sup> | -                    | -           |
|                         | [REDACTED]                       | \$ 150,000 <sup>(5)</sup> | -                    | -           |

Notes:

1. A total of \$9,600,000 was given for Cook's Dam Reservoir, Rock Brook Diversion and Leadmine Diversion.
2. Capital cost estimates were not identified in the individual water supply plan.
3. In New Britain's capital improvement plan as a long-range item; not shown to be needed during the planning period.
4. Likely to be a post-2030 source improvement.
5. Developed by 1992 to increase system safety factor.

### 3.3.7 Summary

#### 3.3.7.1 Overview of the Results of the Planning Process

In general, the major accomplishments of the Coordinated Planning Process to date include the following:

- The process has established a delineation of areas within which service will be provided by a single utility, thus allowing future supply needs to be clearly defined while giving municipal officials and developers an understanding of how water service will be provided.
- Sources required to meet the projected demands of the Management Area have been identified in accordance with the individual plans prepared by the various utilities and review of these plans by the State, the WUCC and citizen's groups.
- The present status of watershed and aquifer protection measures in each community in the Management Area has been defined, with suggestions made for improvements in plans of development or zoning controls where shown to be appropriate.
- Finally, the coordinated planning process has served to bring more of a sense of common interests and concerns to the various utilities who have regularly participated. The WUCC meetings have acted as a vehicle for the utility managers to get to know each other better and to informally discuss long-standing problems and potential solutions.

#### 3.3.7.2 WUCC-Recommended Solutions to Identified Problems

The WUCC notes that a good many of the concerns expressed in the Water Supply Assessment involve complex, site-specific issues, and offers the general recommendation that those problems, and their potential solutions, be thoroughly investigated by water supply professionals retained by the individual utilities. This philosophy will form the cornerstone of the Management Area's future program to address the variety of problems identified in the Water Supply Assessment. By way of summary, these general problems, and the WUCC's proposed approach to their solution, are as follows:

##### 1) Inconsistent Data

This problem will be eased for the larger utilities through the inclusion of their individual plans in the final Coordinated Plan. The questionnaire used in the course of preparing the Water Supply Assessment has filled some of the remaining data gaps, with the WUCC recommending that the State take an active role in filling remaining data gaps for small systems.

2) Regulatory Burden

The WUCC urges the State to allow greater regulatory flexibility in terms of the following:

- minimum design requirements
- diversion permit requirements (especially as related to interconnections)
- rate relief in instances where failed utilities must be taken over
- financial assistance programs for these takeover instances or to further interconnection programs.

The WUCC strongly suggests that the State devise simpler rate increase applications for all utilities regardless of size, with these simpler applications structured so that truly pertinent issues are highlighted. The WUCC also notes the coming increase in regulatory burdens associated with complying with the requirements of the amendments to the Safe Drinking Water Act, and believes that satellite management in terms of operational assistance, monitoring and sampling, and meeting the reporting requirements of the Act, will become increasingly common in the Management Area.

3) Competition Between Utilities

No serious conflicts were evident in establishing exclusive service areas for the various utilities, with those conflicts that did arise readily resolved through mediation by a WUCC subcommittee. Thus, future competition among utilities for new service areas is unlikely. There has also been general agreement in the Upper Connecticut WUCC on the issue of franchise areas versus exclusive service areas. This agreement can be summarized as follows:

- Franchise areas are set by a legislatively-mandated process, and are not altered by actions of the WUCC or by any exclusive service area declarations, whether disputed or not.
- A utility cannot expand its franchise area simply through an exclusive service area declaration.
- The granting of a franchise area gives a utility (or utilities) the right to provide water service within that area. The exclusive service area process is merely an efficient means to "sort out" which of several utilities will actually provide service to a particular area where franchise designations overlap. If the designated utility fails to provide adequate service, it is presumed that the area will then revert to those other utilities that can claim it by virtue of their franchise area (or to those utilities who wish to expand their franchise area through the legislative process).

- It is possible that unserved "islands" may be left within franchise areas of utilities which are unwilling or unable to provide service to these "islands." If other utilities do not volunteer to serve these areas, either the WUCC, DOHS, or DPUC will designate how service is to be provided--a step which will still require the designated utility to go through the usual legislative process for franchise expansion if it does not already have franchise rights for these areas.
- It is presumed that the purchase of a utility also implies the transfer of both its franchise area and its exclusive service area.

#### 4) Potential Groundwater Problems

The WUCC has recommended that these problems be minimized through the use of protective zoning in aquifer (and watershed) areas. As a further safety factor, the WUCC has also identified, and recommended protection of, other potential sources which are not shown to be needed through the year 2030 given simple calculations of projected demand versus estimated source yields. Various utilities have also prepared plans to bring sources on-line as a means to increase system safety factors, thereby mitigating the potential impact of the loss of well (or wellfield) to contamination.

#### 5) Barriers to the Use of Some Supplies

The Assessment noted several barriers to the use of particular supplies. Special note was taken of the public opposition that has been expressed to development of the West Branch of the Farmington River for drought contingency use, and to the general prohibition against the use of the "Class B" waters of the Connecticut River. General concerns were also expressed over groundwater diversions and their potential impacts on environmentally sensitive areas and/or the low flow characteristics of surface streams. None of these issues can truly be resolved through the WUCC process, with a final resolution for each probably only gained through a site-specific review of detailed diversion applications. As noted above, the WUCC has called for a simplification of diversion permit applications, and believes that most, if not all, of the concerns raised relative to groundwater diversions can be resolved through this application and review process.

WUCC recommendations regarding the controversial proposed surface water diversions include the following:

- For the West Branch of the Farmington River, the WUCC agrees with the MDC's strategic plan concept, which calls for a series of steps to be

taken, and results evaluated, before turning to the West Branch as a source of potable supply. These steps include the following:

- Modifications to the East Branch Reservoir System
  - Development of all feasible groundwater sources (subject to the diversion process limits discussed above)
  - Continuing and expanding water conservation programs as a means to delay new source development
- For the Connecticut River, the WUCC recommends that its potential future use as a potable supply be retained in the Connecticut Water Company's Individual Plan, pending a successful search for feasible Class A source alternatives.

6) Agging and/or Substandard Infrastructure

For larger utilities, replacement and upgrading needs are addressed in their individual plans. For smaller systems, these problems have been addressed by the WUCC in terms of their concurrence with DPUC's minimum design standards. It will remain up to the State to identify those smaller systems with substandard infrastructure and to require their replacement or upgrading.

7) Financing

Many of the utilities in the Area may continue to suffer from a poor financial base - a situation which will make it difficult to make needed system improvements, and which may lead to some form of satellite management or system takeover for the hardest-pressed smaller utilities. Financing of system upgrades, including those necessitated by the amendments to the Safe Drinking Water Act, and replacement of old or inadequate components may be difficult for many of the otherwise well-run utilities in the Area regardless of size. There is a clear need for a State program of loan guarantees, grants, or revolving funds to allow these improvements to be made without creating an undue rate burden for present system customers.

8) Lack of Local Ordinances for Water Supply Protection

The WUCC has thoroughly addressed this problem in Section 3.4 of the Integrated Report, and has identified areas requiring protection as water supply sources, areas which presently have land uses in conflict with protection goals, and steps needed to provide appropriate levels of water supply protection.

9) System and Source Reliability

Again, the major utilities in the WUCC have demonstrated in their individual plans the means by which their systems and sources can satisfy the needs of their exclusive service areas through the year 2030. These improvements will be constructed to conform to the minimum design standards endorsed by the WUCC, which will also assure system and source reliability for smaller utilities as specific problems are identified by the State. (Single source systems can also be enhanced by the WUCC's commitment to an interconnection program.)

10) Lack of Coordination Between Utilities and Communities

This concern was primarily addressed to the need for utilities and communities to work together to protect existing and potential water supply resources, and has been addressed by the WUCC in the land use compatability discussion in Section 3.4 of the Integrated Report.

11) Lack of Adequate Incentive To Be a Satellite Manager

As discussed in the Assessment, this problem is related to satellite management in the sense of the actual takeover of a troubled utility. The issues which act to discourage such action are diverse, and are not readily subject to resolution through the WUCC. It is clear that more needs to be done to compensate a utility which takes on the responsibility of owning or operating a troubled system, starting with the need to establish the right of the acquiring utility to seek premium rates of return on any investments necessary to bring the acquired utility up to minimum design standards and operating conditions. The State should devise a program which assures both that negative financial impacts will not accrue to the acquiring utility or its customers as a result of such a takeover, and that the acquiring utility cannot be held liable for actions taken by the previous owners/operators of the acquired system.

12) Need for Technical and/or Managerial Support/Information

The WUCC encourages greater use of satellite management to meet these needs, with the type of management provided ranging from simple assistance in routine operation and maintenance to system takeovers.